

WHITE RIVER BASIN SURVEY: WEST FORK WHITE RIVER, 2004

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## EXECUTIVE SUMMARY

- Eighteen, approximately one mile reaches of river were sampled beginning at river mile 3.6 near the confluence with the Wabash River and ending at RM 194.1 near Martinsville, Indiana. Fish and habitat data were collected at each site. This report was part of a two-year project to assess fisheries data from the EFWR and the WFWR.
- There was no relation between IBI and QHEI scores. There was a positive correlation between IBI scores and river mile; IBI scores increased as river mile increased. The average IBI score was 40 (median = 40), which is considered “fair.” Of 18 sampling reaches, 5 were “good” or better and the other 13 were scored as “fair” or lower. Fish habitat scores (QHEI) ranged from 44.0 to 66.0 (median = 56.8) for all reaches.
- All sampling efforts yielded 26,925 fish weighing approximately 3,970 lbs, representing 17 families, 70 species and two hybrids. Crews collected 55 species via electrofishing and an additional 17 species via seines.
- Spotfin shiner was the most abundant species (66%), followed by bullhead minnow (7%), sand shiner (6%), and bluntnose minnow (4%). Common carp (26%) was the most abundant species collected by weight, followed by smallmouth buffalo (15%), river carpsucker (10%), and blue sucker (9%). Sportfish comprised less than 2% of the total sample by number and less than 9% by weight.
- Channel catfish grew slower in the WFWR than in the EFWR. Flathead catfish and freshwater drum grew similarly in the EFWR and WFWR. Channel catfish up to 25.6 and flathead catfish up to 33.6 in TL were collected. Spotted bass were slightly longer on average in the WFWR compared to the EFWR. Spotted bass up to 14.2 in TL were collected. Not enough data was collected from other sportfish species to do any comparisons.
- There were 19 public access sites for the entire WFWR. Only one site was recommended for acquisition by fisheries biologists. There were four access sites (Bloomfield, Freedom, Gosport, and Paragon) on the acquisition priority list as of February 2006.
- The only recommendation is to form a workgroup to develop a White River Basin management plan.

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## INTRODUCTION

The West Fork White River (WFWR) begins in Randolph County, in the east-central side of the state and flows 356 mi southwest and joins the East Fork White River in Pike and Daviess Counties. The WFWR drains approximately 5,372 mi<sup>2</sup>. The upper reaches of the WFWR drain mostly agricultural fields until it flows through large cities, like Anderson and Indianapolis. Approximately 30 mi of the WFWR flows from the northeast corner of Indianapolis to the southwest corner of the city. There are multiple dams along the WFWR that impede fish from moving upriver, for example, the 16<sup>th</sup> St. Dam in southern Indianapolis and Broad Ripple Dam in northern Indianapolis. Commercial fishing is allowed on the WFWR from the mouth to the confluence with the Eel River.

The WFWR has experienced two large fish kills in the last 30 years. In 1976, a large fish kill affected almost 176 mi of river from Southport Rd. in Indianapolis to the mouth of the WFWR. An estimated 5 million fish were lost due to excess amounts of ammonia discharge into the river (Kingsley 1983). In December 1999, another major fish kill affected approximately 60 river mi from Anderson to Lake Indy. An estimated 4.3 million fish weighing 180 tons were lost after Guide Corporation used too much sodium dimethyldithiocarbamate (HMP 2000) to treat their wastewater that was eventually pumped directly into the city of Anderson's wastewater treatment facility. The HMP 2000 broke down into thiram, which is classified as a general use pesticide. The city's plant was quickly overcome and as a result, large quantities of contaminated wastewater and raw sewage were released into the WFWR.

Major portions of the West Fork White River have not been surveyed by the IDFW while some portions have been surveyed sporadically. The objective of this project was to collect fish community, fish habitat, and public access data to provide information needed to develop a river-wide management plan. Along with fish and public access data, recreational use data was collected in 2003 via a creel survey from April to October (Hoffman 2004).

## METHODS

Eighteen, approximately one mi reaches of river were established beginning at river mi 3.6 and ending at RM 194.1 near Martinsville (Figure 1). Water chemistry data was collected at each reach according to Manual of Fisheries Survey Methods (Shipman 2001). Habitat data was

collected and scored at each reach according to the Qualitative Habitat Evaluation Index (QHEI) (Rankin 1989). Fish were sampled using boat-mounted DC electrofishing gear and sampling followed standard protocol for rivers and streams in Indiana (Shipman 2001). Each bank of the reach was sampled with approximately 0.5 h of effort. Additionally, a minimum of three seine hauls were conducted at each reach. All fish were measured to the nearest 0.1 in total length (TL). Fish weights were estimated using weight-length regressions. Scales were collected from a subsample of five fish per 0.5 in-group for sportfish. An IBI score was assigned to each reach based upon modifications by Simon (1998).

## RESULTS

### Water chemistry and fish habitat

Water chemistry data were within ranges to sustain fish survival (Table 1). Secchi disk measurements ranged from 9 to 21 in. Dissolved oxygen ranged from 8.0 to 17.0 ppm. Conductivity measurements ranged from 656 to 1,116  $\mu$ S. Water temperatures ranged from 67.8 to 80.6 °F. Average flow ranged from 837 to 3,400 cfs (Table 2). Gradient ranged from 0.4 to 2.84 ft/mi. Average width ranged from 187 to 506 ft. Fish habitat scores (QHEI) ranged from 44.0 to 66.0 (median = 56.8) for all reaches (Table 3).

### Fisheries survey data

All sampling efforts yielded 26,925 fish weighing approximately 3,970 lbs, representing 17 families and 72 species and two hybrids. Crews collected 55 species via electrofishing and an additional 17 species via seines. Spotfin shiner was the most abundant species (66%), followed by bullhead minnow (7%), sand shiner (6%), and bluntnose minnow (4%). Common carp (26%) was the most abundant species collected by weight, followed by smallmouth buffalo (15%), river carpsucker (10%), and blue sucker (9%). Sportfish comprised less than 2% of the total sample by number and less than 9% by weight.

For combined electrofishing and seining data, IBI scores ranged from 32 to 46 of a maximum of 60 (Table 4). There was no significant correlation between QHEI and IBI scores for all reaches pooled ( $R = 0.2487$ ;  $P = 0.320$ ) (Figure 2). The average IBI score was 40 (median = 40), which is considered “fair.” Of 18 sampling reaches, 5 were “good” or better and the other

13 were scored as “fair” or lower. There was a significant increase in IBI as river mi increased ( $R = 0.6748$ ;  $P = 0.002$ ) (Figure 2).

#### Carp and minnow family (Cyprinidae)

The Cyprinidae family comprised 21 species and accounted for 88% of the total number of fish collected and 29% of the total weight of fish collected. Spotfin shiner, bullhead minnow, sand shiner, and bluntnose minnow were among the most abundant species in this family. Spotfin shiner accounted for 66% of the total number of fish collected. Silver carp, silver chub, river shiner, bigeye chub, and channel shiner were among the least collected species from this family. Seining accounted for almost 98% of the individuals collected from this family.

#### Sucker family (Catostomidae)

The Catostomidae family comprised 12 species and represented 4% of the total sample by number, but 44% by weight. River carpsucker, smallmouth buffalo, blue sucker, and quillback were among the most abundant species of this family. Silver redhorse, black redhorse, and northern hogsucker were collected in fewer numbers. Only six northern hogsuckers were collected from only one sampling reach. Other species collected were golden redhorse, shorthead redhorse, highfin carpsucker, black buffalo, and bigmouth buffalo. Approximately 93% of the individuals from this family were collected via electrofishing.

#### Livebearer family (Poeciliidae)

The Poeciliidae family was represented by one species, the western mosquitofish. This species accounted for 3% of the total number of fish collected. Western mosquitofish were collected at 15 of 18 sampling reaches.

#### New World silversides (Atherinopsidae)

The only representative of this family was the brook silverside. This species ( $n = 318$ ) accounted for just over 1% of the total sample by number and they were all collected by seining. Brook silverside ranged from 1.6 to 3.0 in TL and were collected at 11 of 18 sampling reaches.

### Herring family (Clupeidae)

Gizzard shad and threadfin shad were the only representatives of the Clupeidae family and comprised 1% of the total sample by number and 2% by weight. Nearly all of the Clupeids were collected via electrofishing and they were mostly gizzard shad. Gizzard shad ranged from 2.3 to 16.8 in TL. Including only fish caught via electrofishing, gizzard shad accounted for 12% of the sample by number. Only one threadfin shad was collected at RM 57.5 and no gizzard shad were collected at this sampling reach.

### Gar family (Lepisosteidae)

The Lepisosteidae family comprised two species and accounted for 1% of the total sample by number and nearly 9% by weight. Shortnose gar was more abundant than longnose gar. Shortnose gar ranged from 16.9 to 29.5 in TL and longnose gar ranged from 17.9 to 45 in TL. Gar were collected at all but one sampling reach.

### Drum family (Sciaenidae)

Freshwater drum was the only representative of this family. Freshwater drum ranged from 3.7 to 24.1 in TL (Figure 3) and they accounted for less than 1% of the total sample by number and 6% of the total sample by weight. Freshwater drum were collected at all 18 sampling reaches. Freshwater drum reached 16.7 in by age 4. Some of the longest and potentially oldest freshwater drum were not aged because of regenerated scales.

### Sunfish family (Centrarchidae)

The Centrarchidae family comprised 10 species and 1 hybrid, and represented less than 1% of the total sample by number and 1% by weight. Most of the Centrarchids were collected via electrofishing and they represented 7% of the electrofishing sample by number. Spotted bass was the most numerous sunfish species. Spotted bass were collected at 16 of 18 sampling reaches and they ranged from 2.2 to 14.2 in TL (Figure 3). Spotted bass reached 11.5 in TL by age 4 (Table 5). A von Bertalanffy growth function could not be fit to age data for spotted bass, presumably due to error in aging scales, especially in older fish.

Longear sunfish and bluegill were the next most common sunfish species. Longear sunfish up to 5.2 in TL and bluegill up to 6.0 in TL were collected. Bluegill were collected at 12 sampling reaches and longear were only collected at 9 sampling reaches.

White crappie, smallmouth bass, largemouth bass, black crappie, and redear sunfish were all caught in small numbers ( $n \leq 6$  each). White crappie were collected at five sampling reaches, smallmouth bass at two, largemouth bass and black crappie at one each. White crappie up to 12.8 in TL were collected. Green sunfish and orangespotted sunfish were also collected in few numbers.

#### Catfish family (Ictaluridae)

The Ictaluridae family comprised 4 species, accounting for less than 1% of the total number collected and 6% of the total weight collected. One individual blue catfish measuring 20.2 in TL and four mountain madtoms were collected. Channel catfish was the most abundant species in this family, accounting for almost 4% of the total weight collected. Channel catfish were collected at 16 of 18 sampling reaches and ranged from 1.8 to 25.6 in TL (Figure 3). The growth coefficient (K) from a von Bertalanffy growth curve was 0.138, which was lower than channel catfish in the EFWR ( $K = 0.165$ ) (Hoffman 2006). The oldest individual was 12 years old (Table 5). Based on yield per recruit models using a natural mortality estimate of 25% and a total annual mortality estimate of 34% (based on EFWR channel catfish), channel catfish in the WFWR were not experiencing growth overfishing. If, however, exploitation were increased to 25% (about a 15% increase), growth overfishing would be occurring with a minimum size limit of 10 in TL.

Flathead catfish was the next most abundant species of the Ictaluridae family. Flathead catfish ranged from 4.0 to 33.1 in TL, accounting for 3% of the total sample. The majority of the flathead catfish were between 6 and 16 in TL. Not enough data was collected to fit a von Bertalanffy growth function to age data; however, flathead catfish reached 15.8 in TL by age 4 (Table 5).

#### Temperate bass family (Moronidae)

The Moronidae family consisted of three species and one hybrid. White bass was the most abundant species in this family and they ranged from 3.2 to 16.3 in TL. White bass ( $n =$

35) were collected at 14 of the 18 sampling reaches. White bass up to age 6 were collected. Only six yellow bass, five hybrid striped bass, and one striped bass were collected.

#### Perch family (Percidae)

The Percidae family comprised 7 species, accounting for less than 0.1% of the total sample by weight and number. There were 6 darter species collected and the other species was sauger. Sauger ranged from 12.4 to 18.5 in TL and were collected at half of the sampling reaches. Sauger grew fast, reaching 18.5 in TL after three summers of growth (age 2).

#### Mooneye family (Hiodontidae)

Only one species of the Hiodontidae family was collected. Goldeye ranged from 11.9 to 17.2 in TL and were collected at 13 of 18 sampling reaches.

#### Sturgeon family (Acipenseridae)

Seventeen shovelnose sturgeon were collected at 8 of the 18 sampling reaches. Shovelnose sturgeon ranged from 8.3 to 29.8 in, measured from the tip of the snout to the fork in the caudal fin. No shovelnose were captured above RM 145.1.

#### Topminnow family (Fundulidae)

Blackstripe topminnow were the only members collected from the Fundulidae family. Blackstripe topminnow were collected at only one sampling reach (RM 45.7) and ranged from 1.4 to 2.2 in TL.

#### Lamprey family (Petromyzontidae)

The chestnut lamprey was the only member of this family collected, ranging from 7.4 to 11.1 in TL. Chestnut lamprey were collected at 4 of 18 sampling reaches, all above RM 73.6.

#### Bowfin family (Amiidae)

Two bowfin were collected at RM 45.7 and were 21.8 and 22.8 in TL.

### Sculpin family (Cottidae)

Only one individual mottled sculpin was collected and it was from RM 141.5.

## DISCUSSION

The overall purpose of this project was to collect fisheries and access data for the EFWR in 2003 (Hoffman 2006) and the WFWR in 2004. Major portions of the White River system had not been surveyed and other portions had been surveyed on an irregular basis. Data collected in this project would be used to develop a system-wide management plan. Another component of this project was to assess and recommend acquisition of new access sites in the area. There was one recommendation for acquiring a new access site at the end of CR 990 off HWY 231 in Owen County. A DFW crew was able to launch at an old ferry crossing and recommended the site for a boat ramp. Other sites that were on the acquisition list were in Greene, Owen, Monroe, and Morgan Counties.

There was no correlation between QHEI and IBI scores when all sample sites were pooled for the WFWR. For data from the EFWR 2003 (Hoffman 2006), there was a correlation between QHEI and IBI scores only when sample sites above Williams Dam were included (drainage area  $< 4,000 \text{ mi}^2$ ). Drainage areas for the sample sites on the WFWR ranged from 2,700 to over 11,000  $\text{mi}^2$ . There was no correlation between QHEI and IBI when the data for the WFWR was truncated for sites less than 4,000  $\text{mi}^2$ . Similar to the EFWR, IBI scores for the WFWR were mostly considered “fair.” The median IBI score for the WFWR was 40, which was slightly lower than the EFWR (median = 44). There was less variability in IBI scores for the WFWR (range = 32 to 46), compared to the EFWR, where IBI scores ranged from 30 to 58. For the EFWR and the WFWR, there was a significant, positive correlation between river mi and IBI. The median QHEI score for WFWR sample sites was 57, which was slightly lower than the median QHEI score (median = 64) for the EFWR. The highest QHEI score for the WFWR was 66 compared to 84 for the EFWR. The EFWR seems to be in better shape as far as fish diversity and habitat than the WFWR.

Combining electrofishing and seining yielded 70 species, representing 17 families of fish in the WFWR. In comparison, 69 species were collected in the EFWR in 2003 and 82 species were collected in the Wabash in 1999, although the samples for the Wabash were collected during July. No endangered species or species of special concern were collected in the WFWR.

No paddlefish were collected in the EFWR or the WFWR, but seven individual paddlefish were collected in the Wabash. The relative abundances of fish families represented in the total sample were expected. The sample consisted of mainly species from the Cyprinids in terms of abundance and Catostomids by weight, which is typical for large rivers. Crews captured 17 additional species via seines that were not captured with electrofishing. Six grass carp and one silver carp were collected via electrofishing. Grass carp were collected at 5 sampling reaches from RM 73 to 145. The one silver carp was collected at RM 15.9. Only one grass carp and no silver carp were collected in the EFWR.

Sportfish were collected in few numbers relative to other species, which was expected for larger rivers. Channel catfish, flathead catfish, and spotted bass were among the most abundant sportfish collected. Based on von Bertalanffy growth models, channel catfish grew slower in the WFWR ( $K = 0.138$ ) compared to the EFWR ( $K = 0.165$ ). Simulated results were similar for channel catfish in the WFWR compared to the EFWR and the Wabash. The current 10-in minimum size limit does not protect mature channel catfish. With the current estimates of annual mortality, exploitation was not large enough for growth overfishing to occur, but if exploitation increased by 10%, growth overfishing would likely occur. Flathead catfish in the EFWR and WFWR grew similarly, reaching almost 16 in TL by age 4. Freshwater drum were included in age and growth analyses because they were abundant in both the EFWR and the WFWR, and they received substantial directed effort during a creel survey on the EFWR (Hoffman 2004). Freshwater drum grew nearly identical in the EFWR and WFWR. Spotted bass growth was not compared between the EFWR and WFWR because a von Bertalanffy growth function could not be fit to data from the WFWR. However, spotted bass reached 11.5 in TL by age 4 in the WFWR compared to 10.7 in TL in the EFWR. Not enough information was collected to assess growth of other sport fish species, such as largemouth bass, white or black crappie, and smallmouth bass.

## RECOMMENDATIONS

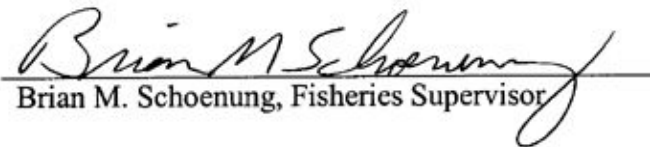
- Form a workgroup to review data collected from the EFWR and WFWR. The workgroup will develop a White River Basin management plan.

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Table 1. Station water chemistry information, West Fork White River, September, 2004.

River Mile	Secchi disk (in)	Air Temperature (°F)	Water Temperature (°F)	Dissolved oxygen (ppm)	Conductivity (μS)
3.6	14	82.9	80.1	8.0	656
15.9	12	76.3	76.6	10.0	678
24.3	9	72.9	78.1	13.0	672
39.2	10	82.6	79.2	15.0	686
45.7	13	67.5	80.6	8.0	702
57.5	10	59.9	68.2	11.6	827
61.52	10	59.9	68.2	11.6	803
73.06	11	64.9	69.4	11.4	874
84.5	11	64.9	69.4	11.4	874
101.4	12	62.8	67.8	9.1	870
105.7	16	75.0	72.0	14.5	*
115.5	18	82.0	74.0	17.0	1,101
125.0	12	71.0	70.0	10.0	1,101
134.7	16	80.0	72.0	16.0	*
145.1	13	80.0	72.0	11.0	1,116
156.36	21	75.0	68.0	12.0	700
164.53	20	70.0	68.0	8 to 9	1,000
194.09	21	64.0	70.0	13 to 14	1,000

Table 2. Station location, drainage area, flow, gradient, sample distance, average width, average and maximum depth, West Fork White River, September, 2004.

River mile	County	Nearest town	Drainage area (mi <sup>2</sup> )	Flow (cfs)	Gradient (ft/mi)	Sample distance (ft)	Average width (ft)	Average depth (in)	Maximum depth (in)
3.6	Gibson/Pike	Mt. Carmel, IL	11,349	2580	0.4	2796	506.4	38.4	75.6
15.9	Gibson/Knox	Hazelton, IN	11,295	2200	0.4	4758	329.4	69.6	144.0
24.3	Gibson/Knox	Decker, IN	11,246	2250	0.4	5058	245.6	45.6	87.6
39.2	Knox/Pike	Petersburg, IN	11,170	2200	0.8	4740	444.0	54.0	118.8
45.7	Pike/Knox	Petersburg, IN	11,117	2150	0.9	1794	481.8	64.8	140.4
57.5	Daviess/Knox	Washington	5,254	3400	0.94	5050	318.6	36.4	81.6
61.52	Daviess/Knox	Washington	5,232	3400	1.02	3804	301.0	49.2	111.6
73.06	Daviess/Knox	Bicknell	5,032	3400	1.28	3511	217.5	55.3	264.0
84.5	Daviess/Knox	Edwardsport	4,852	3400	1.02	4803	289.0	45.3	100.8
101.4	Daviess/Knox	Elnora	4,793	3400	1.20	5870	223.5	33.7	102.0
105.7	Daviess/Knox/Greene	Elnora	4,769	908	0.93	4271	288.0	58.0	156.0
115.5	Greene	Plummer	4,658	908	0.93	3084	320.4	42.5	62.0
125.0	Greene	Bloomfield	4,413	908	0.93	4351	275.4	55.3	120.0
134.7	Greene	Worthington	3,184	908	1.45	2556	232.0	63.5	128.0
145.1	Owen	Farmers	3,091	837	1.14	3010	220.2	45.1	145.0+
156.36	Owen	Pottersville	2,999	*	1.20	3850	190.0	51.0	120.0
164.53	Owen	Spencer	2,968	*	1.23	3060	187.0	61.0	>132.0
194.09	Morgan	Martinsville	2,722	*	2.84	3060	234.0	41.0	96.0

Table 3. Station Qualitative Habitat Evaluation Index (QHEI) metric component scores, West Fork White River, September, 2004. Maximum scores are in parentheses.

River Mile	Substrate (20)	Cover (20)	Channel (20)	Riparian (10)	Pool (12)	Riffle (8)	Gradient (10)	Total (100)	Percent Pool	Percent Run	Percent Riffle
3.6	4	6	11	5	9	5	6	46.0	20	75	5
15.9	12	5	14	8.5	10	5	6	60.5	30	50	20
24.3	10	5	14	5	10	5	6	55.0	30	55	15
39.2	6	5	11	5.5	12	0	8	47.5	1	99	0
45.7	4	5	11	6	10	0	8	44.0	9	90	1
57.5	10	10	12	6	0	0	8	46.0	0	100	0
61.52	12	14	12	7	0	0	8	53.0	0	100	0
73.06	13	16	16	7	0	0	10	62.0	0	100	0
84.5	12	11	13	9	0	0	8	53.0	0	100	0
101.4	6	10	15	6	0	0	10	57.0	0	100	0
105.7	13.5	12	10	5	10	0	6	56.5	25	75	0
115.5	11.5	6	10	6	0	5	6	44.5	0	100	0
125.0	14	12	9	4.5	11	4	6	60.5	25	50	25
134.7	12	15	12	4.5	10	0	8	61.5	100	0	0
145.1	14	13	12	6	10	0	8	63.0	25	70	5
156.36	14	12	13	7	10	0	10	66.0	*	*	*
164.53	14	12	11	8	10	0	10	65.0	*	*	*
194.09	14	13	13	6	10	0	10	66.0	*	*	*

Table 4. Metric scores for the Index of Biologic Integrity (IBI) for each station, WFWR 2004.

Metric	Metric description	River mile																	
		3.6	15.9	24.3	39.2	45.7	57.5	61.52	73.06	84.5	101.4	105.7	115.5	125.0	134.7	145.1	156.36	164.53	194.09
1	Total # Species	3	3	3	5	5	5	5	5	5	5	5	5	5	3	5	5	5	5
2	% large river taxa	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
3	# of sunfish species	5	1	1	3	5	3	3	3	3	3	5	3	3	1	3	1	3	3
4	# round-bodied sucker species	1	1	1	1	1	1	3	1	3	1	1	3	3	1	3	3	3	3
5	# sensitive species	1	1	1	3	3	3	5	3	3	3	1	5	5	3	3	5	5	5
6	% tolerant species	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	%omnivores	3	3	3	3	3	3	3	3	3	3	1	3	3	1	3	3	3	3
8	%insectivores	3	3	1	3	3	3	3	3	3	3	1	3	3	1	3	3	3	3
9	%carnivores	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
10	CPUE	1	1	3	3	1	3	5	3	3	5	5	5	5	5	5	5	5	5
11	%simple lithophils	1	3	3	3	1	1	3	3	1	3	1	3	3	3	3	3	3	3
12	%DELT anomalies	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Total		34	32	32	40	38	38	46	40	40	42	36	46	46	34	44	44	46	46

Table 5. Number, mean length at age, and standard error determined from age-length keys for selected species in fall 2004, West Fork White River.

Common name	Statistic	Age											
		1	2	3	4	5	6	7	8	9	10	11	12
Channel catfish	Mean		11.4	13.9	15.8	17.2	19.6	21.6	21.5		20.5		23.5
	SE		0.36	0.42	0.54	0.21	0.47	0.66	1.08		NA		NA
	N		10	10	7	25	15	7	5		1		1
Flathead catfish	Mean	8.8	11.1	12.8	15.8	13.5		18.8					
	SE	0.94	0.29	0.18	0.92	NA		0.75					
	N	4	11	7	6	1		4					
Freshwater drum	Mean	8.9	12.1	14.3	16.7	16.2	18.0						
	SE	0.20	0.19	0.14	0.15	0.19	0.29						
	N	9	60	96	10	6	4						
Spotted bass	Mean	6.3	7.8	9.2	11.5			13.8					
	SE	0.16	0.11	0.29	0.19			NA					
	N	23	12	5	24			1					

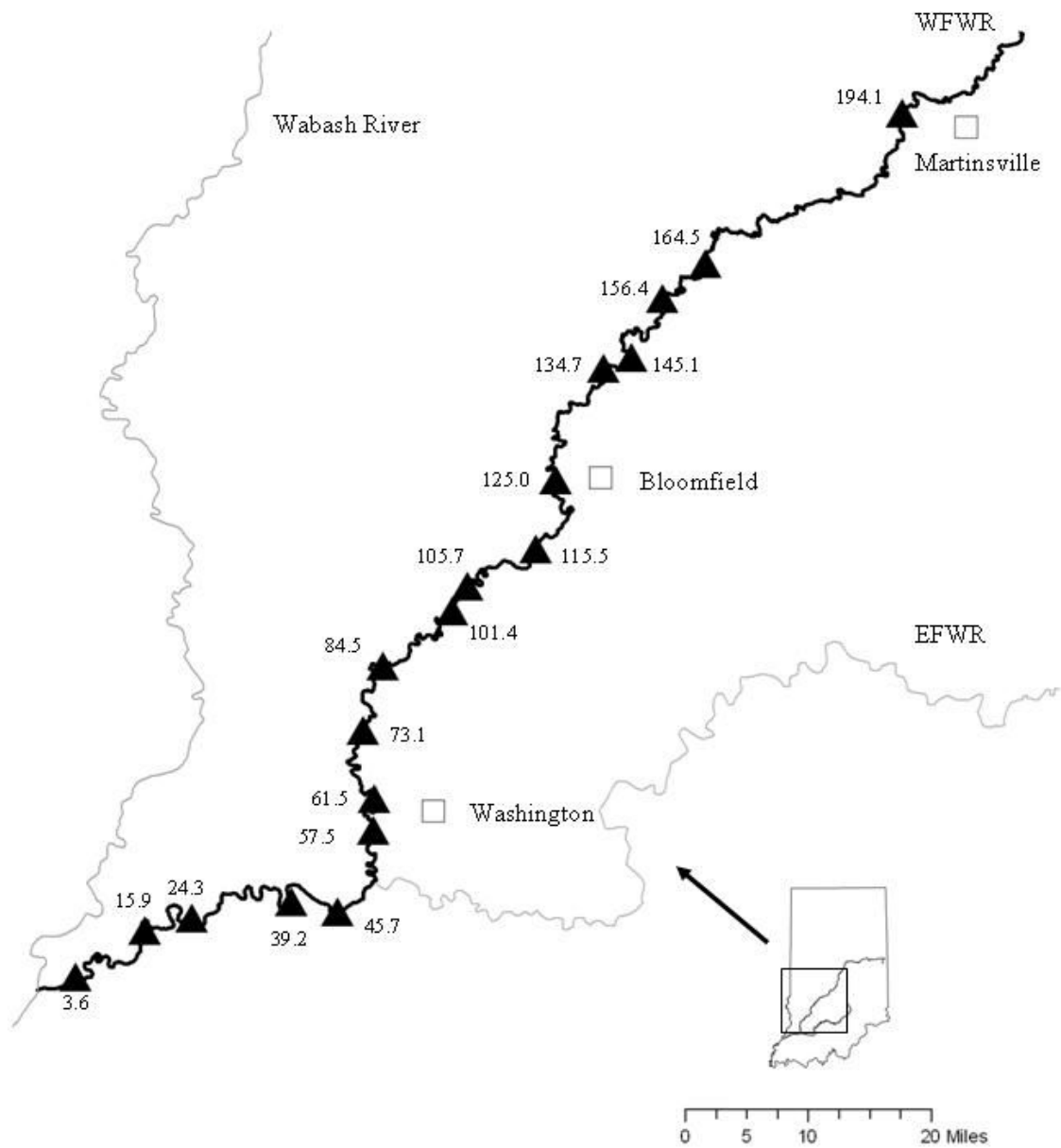


Figure 1. Sampling sites for the West Fork White River, 2004.

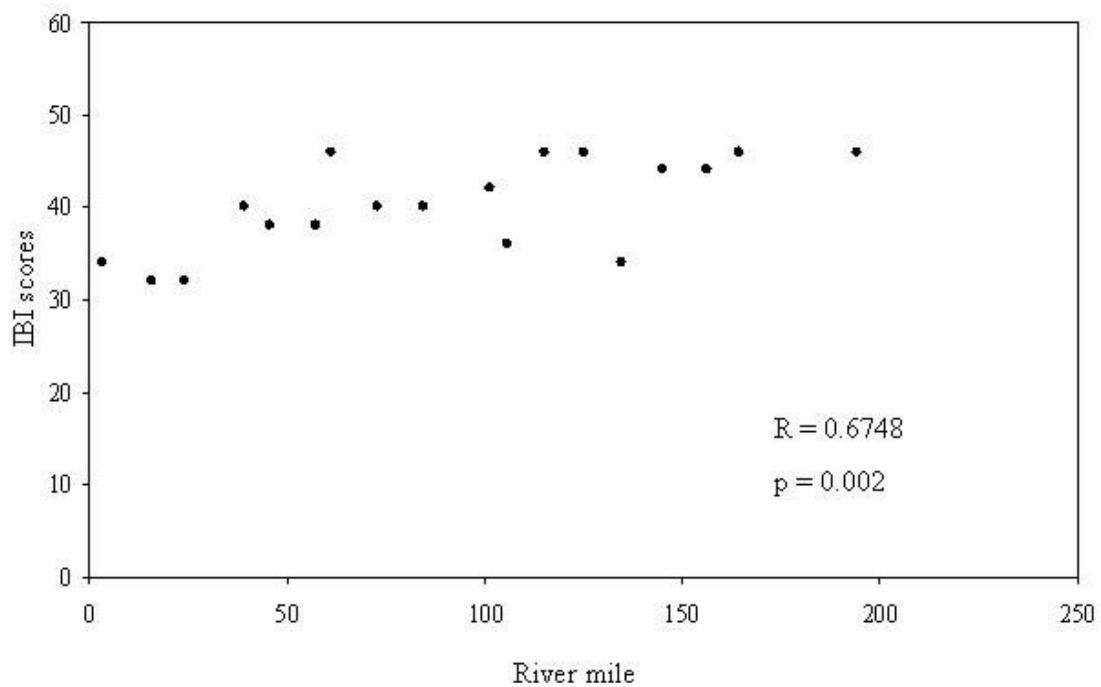
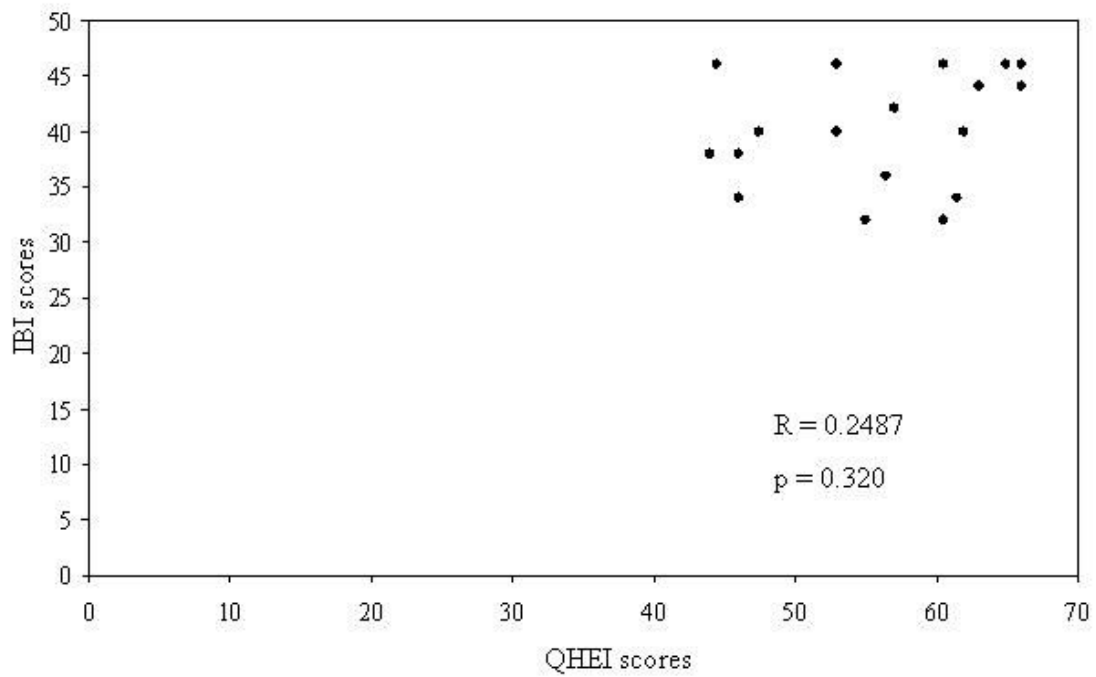


Figure 2. IBI scores and QHEI scores for each station (top) and IBI scores for each station based on river mile (bottom), WFWR 2004.

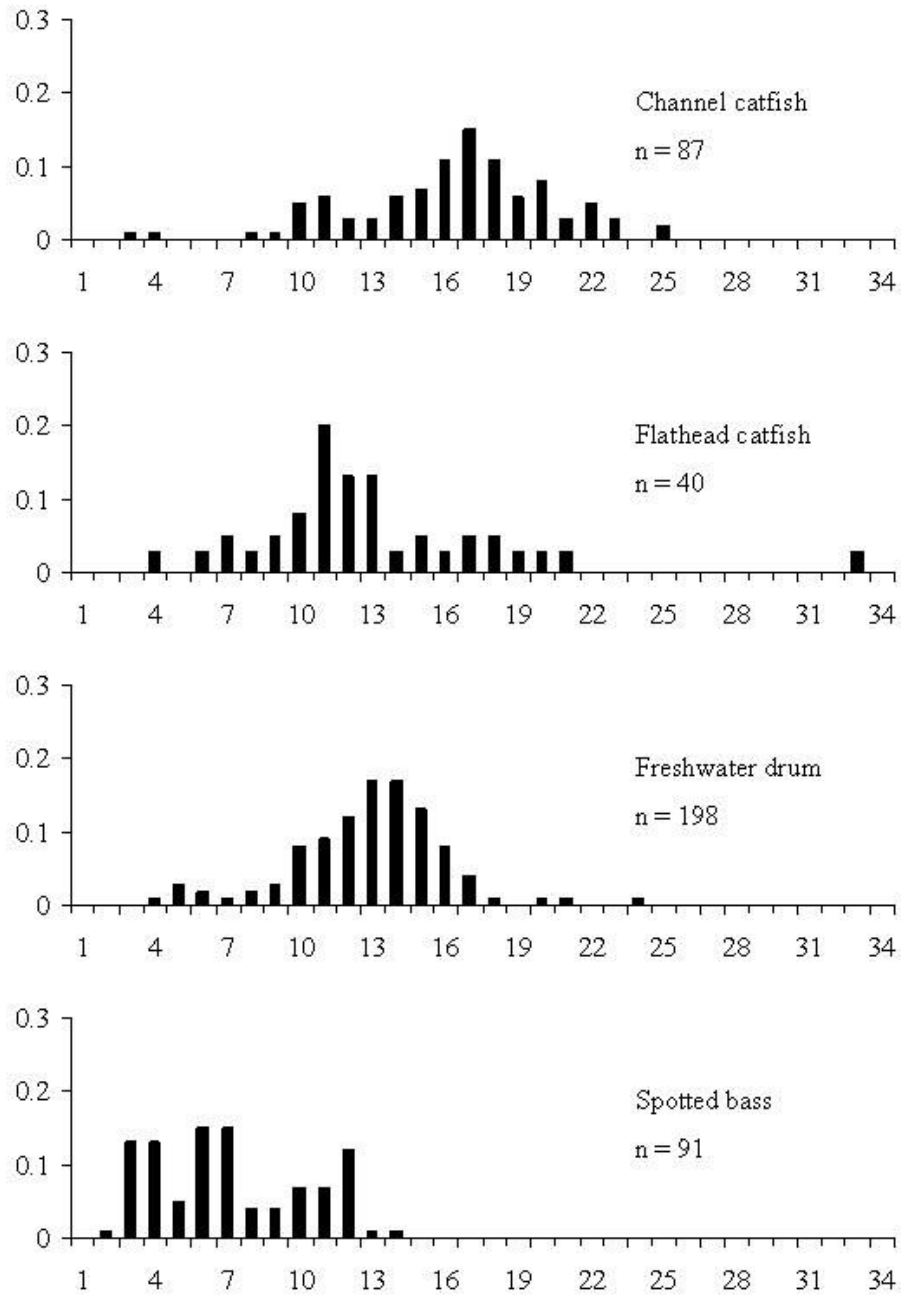


Figure 3. Length-frequency distribution of channel catfish, flathead catfish, freshwater drum, and spotted bass collected in the West Fork White River, 2004.

## APPENDIX A

### LIST OF ACCESS SITES ON THE WEST FORK WHITER RIVER

Appendix A. Access sites on the West Fork White River, as of 2007.

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**Daviess**

NW of Elnora on CR 400E  
5 mi W of Plainville on SR 358 to Carnahan  
Old US 50, W of Washington

**Gibson**

SR 56 at Main and First St. in Hazelton  
Mt. Carmel, IL launch site, NE on 4<sup>th</sup> St. from SR 1

**Greene**

1.1 mi SE of Worthington on SR 157

**Hamilton**

SR 19, 0.3 mi N of SR 38 at Forest Park in Noblesville  
3.7 mi E of Strawtown  
106<sup>th</sup> St., Hazel Dell Landing  
116<sup>th</sup> St. Bridge  
River Bend Campground at Clare

**Knox**

NW of the SR 61 bridge in Petersburg  
East of Wheatland off of SR 150

**Madison**

Edgewater Park in Anderson at East 10<sup>th</sup> St.  
Mounds State Park, SR 232 E of Anderson

**Marion**

From 96<sup>th</sup> St to 16<sup>th</sup> St. with public access at city parks

**Morgan**

4.5 mi N of Martinsville on SR 37, then 0.7 mi W on Henderson  
1 mi W of Waverly on SR 144 to Old SR 144

**Owen**

1.4 mi E of Spencer on SR 46, then 1 mi S on Old Southport Rd.

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## APPENDIX B

NAME, NUMBER, PERCENTAGE, SIZE, WEIGHT, AND OCCURRENCE INDEX OF FISHES  
COLLECTED, WEST FORK WHITE RIVER, FALL 2004

Appendix B. Name, number, percentage, size, weight, and occurrence index of fishes collected, West Fork White River, fall 2004 (all gears combined).

Common name	Scientific name	Total number	% by number	Min.	Max.	Total weight (lb)	% by weight	Occurrence index
Spotfin shiner	<i>Cyprinella spiloptera</i>	17763	66	0.6	3.1	23.6	0.6	18
Bullhead minnow	<i>Pimephales vigilax</i>	1961	7.3	0.6	3.1	3.03	0.1	16
Sand shiner	<i>Notropis ludibundus</i>	1512	5.6	0.8	2.6	1.84	0	15
Bluntnose minnow	<i>Pimephales notatus</i>	1004	3.7	0.7	2.9	1.7	0	18
Western mosquitofish	<i>Gambusia affinis</i>	781	2.9	0.5	1.9	0.99	0	15
River carpsucker	<i>Carpionodes carpio</i>	592	2.2	0.7	18.2	391.66	9.9	18
MS silvery minnow	<i>Hybognathus nuchalis</i>	460	1.7	1.8	4	3.85	0.1	15
Steelcolor shiner	<i>Cyprinella whipplei</i>	343	1.3	0.8	3.2	0.43	0	6
Brook silverside	<i>Labidesthes sicculus</i>	318	1.2	1.6	3	0.76	0	11
Gizzard shad	<i>Dorosoma cepedianum</i>	298	1.1	2.3	16.8	83.12	2.1	18
Smallmouth buffalo	<i>Ictiobus bubalus</i>	216	0.8	0.9	28.1	590.16	14.9	18
Freshwater drum	<i>Aplodinotus grunniens</i>	200	0.7	3.7	24.1	241	6.1	18
Common carp	<i>Cyprinus carpio</i>	182	0.7	13.9	28.7	1027.13	25.9	18
Silverjaw minnow	<i>Notropis buccatus</i>	182	0.7	1	2.6	0.35	0	9
Shortnose gar	<i>Lepisosteus platostomus</i>	181	0.7	16.9	29.5	226.6	5.7	17
Spotted bass	<i>Micropterus punctulatus</i>	101	0.4	2.2	14.2	29.64	0.7	16
Channel catfish	<i>Ictalurus punctatus</i>	95	0.4	1.8	25.6	154.19	3.9	16
Blue sucker	<i>Cycleptus elongatus</i>	77	0.3	9.8	30.7	350.26	8.8	14
Quillback	<i>Carpionodes cyprinus</i>	65	0.2	1.4	18.7	62.1	1.6	9
Longnose gar	<i>Lepisosteus osseus</i>	57	0.2	17.9	45	118.23	3	14
Flathead catfish	<i>Pylodictis olivaris</i>	46	0.2	4.8	33	67.75	1.7	15
Suckermouth minnow	<i>Phenacobius mirabilis</i>	45	0.2	2.5	3.6	0.6	0	6
Bluegill	<i>Lepomis macrochirus</i>	39	0.1	0.9	6	0.86	0	12
Bigmouth buffalo	<i>Ictiobus cyprinellus</i>	38	0.1	13.8	28.1	240.87	6.1	13
White bass	<i>Morone chrysops</i>	35	0.1	3.2	16.3	26	0.7	14
Goldeye	<i>Hiodon alosoides</i>	32	0.1	11.9	17.2	35.15	0.9	13
Longear sunfish	<i>Lepomis megalotis</i>	22	0.1	2	5.2	1.27	0	9
Emerald shiner	<i>Notropis atherinoides</i>	22	0.1	1.5	3.6	0.08	0	9
Central stoneroller	<i>Camptostoma pullum</i>	22	0.1	2.3	3.3	0.19	0	6
Striped shiner	<i>Luxilus chrysocephalus</i>	20	0.1	2	2.6	0.09	0	3
Redfin shiner	<i>Lythrurus umbratilis</i>	19	0.1	1.1	2	0.01	0	5
Sauger	<i>Sander canadense</i>	18	0.1	12.4	18.5	19.87	0.5	9
Shovelnose sturgeon	<i>Scaphirhynchus platyrhynchus</i>	17	0.1	8.3	29.8	23.89	0.6	8
Golden redhorse	<i>Moxostoma erythrurum</i>	14	0.1	2.6	14.4	6.94	0.2	5
Shorthead redhorse	<i>Moxostoma macrolepidotum</i>	14	0.1	3.1	18.8	8.32	0.2	6
Black buffalo	<i>Ictiobus niger</i>	11	0	13.7	32.9	71.96	1.8	6
Dusky darter	<i>Percina sciera</i>	11	0	1.4	3	0.07	0	7
Highfin carpsucker	<i>Carpionodes velifer</i>	10	0	7.4	16.7	8.51	0.2	5
Blackstripe topminnow	<i>Fundulus notatus</i>	8	0	1.4	2.2	0.02	0	1
White crappie	<i>Pomoxis annularis</i>	6	0	6.1	12.8	2.4	0.1	5
Northern hogsucker	<i>Hypentelium nigricans</i>	6	0	4	5.4	0.21	0	1
Orangespotted sunfish	<i>Lepomis humilis</i>	6	0	2.3	3.9	0.22	0	3
Grass carp	<i>Ctenopharyngodon idella</i>	6	0	28	36.3	72.5	1.8	5
Chestnut lamprey	<i>Ichthyomyzon castaneus</i>	6	0	7.4	11.1	0.35	0	4
Yellow bass	<i>Morone mississippiensis</i>	6	0	3.4	9.1	0.47	0	6

Green sunfish	<i>Lepomis cyanellus</i>	5	0	1.4	2.4	0.02	0	3
Hybrid striped bass	<i>Morone saxatilis</i> x <i>M. chrysops</i>	5	0	16.1	26.5	19.42	0.5	3
Speckled chub	<i>Macrhybopsis aestivalis</i>	5	0	1.4	2.5	0.02	0	2
Silver redhorse	<i>Moxostoma anisurum</i>	4	0	13.7	24.1	15.23	0.4	4
Smallmouth bass	<i>Micropterus dolomieu</i>	4	0	7	12.5	2.07	0.1	2
Mountain madtom	<i>Noturus eleutherus</i>	4	0	1.6	2	0.02	0	2
Logperch	<i>Percina caprodes</i>	3	0	3.8	5.8	0.1	0	1
Slenderhead darter	<i>Percina phoxocephala</i>	3	0	2.4	3.2	0.02	0	1
Rosyface shiner	<i>Notropis rubellus</i>	3	0	1.5	1.8	*	0	1
Bowfin	<i>Amia calva</i>	2	0	21.8	22.8	7.3	0.2	1
Eastern sand darter	<i>Ammocrypta pellucida</i>	2	0	2	2	*	0	1
Bigeye chub	<i>Notropis amblops</i>	2	0	2.2	2.3	*	0	2
Hybrid sunfish	<i>Lepomis macrochirus</i> spp.	2	0	2.7	3.8	0.06	0	1
River shiner	<i>Notropis blennioides</i>	1	0	2.7	2.7	0.01	0	1
Silver chub	<i>Macrhybopsis storeriana</i>	1	0	9.8	9.8	0.04	0	1
Largemouth bass	<i>Micropterus salmoides</i>	1	0	12.5	12.5	0.94	0	1
Black crappie	<i>Pomoxis nigromaculatus</i>	1	0	12.2	12.2	1.11	0	1
Black redhorse	<i>Moxostoma duquesnei</i>	1	0	3.2	3.2	0.01	0	1
Blue catfish	<i>Ictalurus furcatus</i>	1	0	20.2	20.2	2.5	0.1	1
Threadfin shad	<i>Dorosoma petenense</i>	1	0	4.1	4.1	0.02	0	1
Johnny darter	<i>Etheostoma nigrum</i>	1	0	1.7	1.7	0.01	0	1
Rainbow darter	<i>Etheostoma caeruleum</i>	1	0	1.7	1.7	0.01	0	1
Redear sunfish	<i>Lepomis microlophus</i>	1	0	2	2	*	0	1
Mottled sculpin	<i>Cottus bairdi</i>	1	0	1.6	1.6	0.01	0	1
Silver carp	<i>Hypophthalmichthys molitrix</i>	1	0	30.3	30.3	11	0.3	1
Striped bass	<i>Morone saxatilis</i>	1	0	29.5	29.5	10.75	0.3	1
Channel shiner	<i>Notropis wickliffi</i>	1	0	2.6	2.6	0.01	0	1
72 Species & 2 Hybrids		26925	100.0			3969.92	100.0	

\*Less than 0.01 lbs.

## APPENDIX C

SPECIES, NUMBER, AND WEIGHT OF FAMILIES COLLECTED FROM THE WEST FORK  
WHITE RIVER, FALL 2004.

Appendix C. Species, number, and weight of families collected from the West Fork White River, fall 2004. All gears combined.

Family		Number	%	Weight	%
<u>Cyprinidae - carps and minnows</u>		23555	87.5	1146.48	29.1
Common carp	Bullhead minnow				
Steelcolor shiner	Grass carp				
MS silvery minnow	Silver carp				
Spotfin shiner	Striped shiner				
Emerald shiner	Channel shiner				
River shiner	Redfin shiner				
Sand shiner	Silverjaw minnow				
Silver chub	Rosyface shiner				
Central stoneroller	Speckled chub				
Bluntnose minnow	Bigeye chub				
Suckermouth minnow					
<u>Catostomidae - Suckers</u>		1048	3.9	1746.23	43.9
Quillback	Northern hogsucker				
Golden redhorse	Smallmouth buffalo				
River carpsucker	Bigmouth buffalo				
Shorthead redhorse	Black buffalo				
Silver redhorse	Highfin carpsucker				
Blue sucker	Black redhorse				
<u>Poeciliidae - Livebearers</u>		781	2.9	0.99	0.0
Western mosquitofish					
<u>Atherinidae - Silversides</u>		318	1.2	0.76	0.0
Brook silverside					
<u>Clupeidae - Herrings</u>		299	1.1	83.14	2.1
Gizzard shad	Threadfin shad				
<u>Lepisosteidae - Gars</u>		238	0.9	344.83	8.7
Shortnose gar	Longnose gar				
<u>Sciaenidae - Drums</u>		200	0.7	241.00	6.1
Freshwater drum					
<u>Centrarchidae - Sunfishes</u>		188	0.7	38.59	1.0
Longear sunfish	Largemouth bass				
Bluegill	Black crappie				
White crappie	Orangespotted sunfish				
Spotted bass	Redear sunfish				
Green sunfish	Hybrid sunfish				
Smallmouth bass					

<u>Ictaluridae - Bullhead catfishes</u>		146	0.5	224.46	5.6
Flathead catfish	Blue catfish				
Channel catfish	Mountain madtom				
<u>Moronidae - Temperate basses</u>		47	0.2	56.64	1.4
White bass	Yellow bass				
Hybrid striped bass	Striped bass				
<u>Percidae - Perches</u>		39	0.1	20.08	0.5
Logperch	Johnny darter				
Slenderhead darter	Rainbow darter				
Sauger	Eastern sand darter				
Dusky darter					
<u>Hiodontidae - Mooneyes</u>		32	0.1	35.15	0.9
Goldeye					
<u>Acipenseridae - Sturgeons</u>		17	0.1	23.89	0.6
Shovelnose sturgeon					
<u>Fundulidae - Killifishes</u>		8	0.0	0.02	0.0
Blackstripe topminnow					
<u>Petromyzontidae - Lampreys</u>		6	0.0	0.35	0.0
Chestnut lamprey					
<u>Amiidae - Bowfins</u>		2	0.0	7.3	0.2
Bowfin					
<u>Cottidae - Sculpins</u>		1	0.0	0.01	0.0
Mottled sculpin					
Total		26,925	100.0	3,982.17	100.0

## APPENDIX D

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED AT EACH  
STATION

DATE: 9/16/2004

STATION: RM 3.6 - EF/Seine Combined

NAME OF STREAM: White River

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Gizzard shad	23	16.2	2.3 - 15.7	12.12	6.1
Spotfin shiner	15	10.6	1.0 - 2.0	*	**
Freshwater drum	15	10.6	3.7 - 15.8	14.00	7.1
Shortnose gar	13	9.2	19.6 - 23.9	16.00	8.1
Common carp	12	8.5	22.3 - 27.0	79.57	40.1
Emerald shiner	10	7.0	1.5 - 2.1	*	**
Brook silverside	9	6.3	2.1 - 2.5	0.02	**
River carpsucker	9	6.3	12.8 - 18.5	16.17	8.1
Bluntnose minnow	7	4.9	0.8 - 2.8	0.02	**
Bigmouth buffalo	6	4.2	13.8 - 26.6	35.85	18.1
Spotted bass	5	3.5	2.9 - 9.7	0.75	0.4
Channel catfish	4	2.8	4.9 - 16.9	4.30	2.2
Western mosquitofish	4	2.8	0.8 - 1.1	*	**
Smallmouth buffalo	2	1.4	14.8 - 23.8	9.85	5.0
Blue sucker	1	0.7	23.8	4.48	2.3
Bluegill	1	0.7	1.5 - 4.3	0.14	0.1
Flathead catfish	1	0.7	11.2	0.52	0.3
Longear sunfish	1	0.7	2.3	0.01	**
Longnose gar	1	0.7	36.1	4.23	2.1
Redear sunfish	1	0.7	2.0	*	**
White bass	1	0.7	9.3	0.36	0.2
White crappie	1	0.7	6.1	0.08	**
<b>Total - 22 Species</b>	142	100.0		198.47	100.0

\*Less than 0.01 lb.

\*\*Less than 0.1%.

DATE: 9/20/2004

STATION: RM 15.9 - EF/Seine CombinedNAME OF STREAM: White River

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	273	59.0	1.0 - 2.3	0.29	0.2
Mississippi silvery minnow	70	15.1	1.8 - 3.9	0.29	0.2
Blue sucker	17	3.7	9.8 - 27.5	69.60	37.0
Freshwater drum	15	3.2	9.5 - 16.7	15.67	8.3
Longnose gar	12	2.6	17.9 - 32.0	22.62	12.0
Shortnose gar	12	2.6	20.5 - 25.9	16.60	8.8
Bullhead minnow	8	1.7	1.0 - 2.1	0.02	**
White bass	8	1.7	9.7 - 16.1	7.91	4.2
Bluntnose minnow	6	1.3	1.6 - 2.0	0.01	**
Channel catfish	6	1.3	17.8 - 21.9	14.60	7.8
Gizzard shad	5	1.1	2.5 - 9.1	0.40	0.2
Sand shiner	5	1.1	0.8 - 1.8	*	**
River carpsucker	4	0.9	4.0 - 17.7	6.14	3.3
Suckermouth minnow	4	0.9	2.5 - 3.2	0.04	**
Western mosquitofish	4	0.9	0.8 - 1.7	*	**
Emerald shiner	3	0.6	2.8 - 3.1	0.01	**
Common carp	2	0.4	21.6 - 26.9	13.63	7.2
Shovelnose sturgeon	2	0.4	23.4 - 29.8	1.14	0.6
Silverjaw minnow	2	0.4	2.1 - 2.2	*	**
Smallmouth buffalo	2	0.4	12.4 - 22.0	6.99	3.7
Flathead catfish	1	0.2	9.6	0.30	0.2
Goldeye	1	0.2	13.4	0.77	0.4
Silver carp	1	0.2	30.3	11.00	5.9
<b>Total - 23 Species</b>	463	100.0		188.03	100.0

\*Less than 0.01 Lb.

\*\*Less than 0.1%.

DATE: 9/21/2004

STATION: RM 24.3 - EF/Seine Combined

NAME OF STREAM: White River

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Mississippi silvery minnow	180	33.9	1.8 - 3.3	1.39	1.0
River carpsucker	174	32.8	0.9 - 17.8	8.89	6.3
Bluntnose minnow	59	11.1	1.0 - 1.9	0.04	**
Spotfin shiner	39	7.3	0.8 - 2.4	0.02	**
Shortnose gar	11	2.1	17.0 - 23.3	12.66	8.9
Freshwater drum	9	1.7	10.0 - 15.5	10.55	7.4
Silverjaw minnow	9	1.7	1.2 - 2.3	0.02	**
Blue sucker	8	1.5	19.8 - 28.1	35.40	24.9
Longnose gar	6	1.1	29.8 - 31.8	16.59	11.7
Western mosquitofish	6	1.1	0.7 - 1.8	*	**
Gizzard shad	5	0.9	3.8 - 13.0	0.97	0.7
White bass	5	0.9	8.1 - 16.3	4.15	2.9
Channel catfish	4	0.8	17.6 - 20.6	9.45	6.7
Common carp	4	0.8	23.0 - 25.5	26.17	18.4
Goldeye	4	0.8	13.5 - 16.6	4.40	3.1
Shovelnose sturgeon	3	0.6	20.4 - 24.5	3.96	2.8
Emerald shiner	1	0.2	2.4	*	**
Flathead catfish	1	0.2	11	0.48	0.3
Sauger	1	0.2	17.4	1.34	0.9
Smallmouth buffalo	1	0.2	20.5	4.75	3.3
Spotted bass	1	0.2	11.8	0.86	0.6
<b>Total - 21 Species</b>	531	100.0		142.09	100.0

\*Less than 0.01 lb.

\*\*Less than 0.1%.

DATE: 9/22/2004

STATION: RM 39.2 EF/Seine Combined

NAME OF STREAM: White River

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	335	49.5	0.9 - 2.4	0.29	0.3
Bullhead minnow	128	18.9	0.9 - 2.3	0.19	0.2
River carpsucker	70	10.3	0.7 - 16.2	1.95	2.3
Mississippi silvery minnow	44	6.5	1.8 - 3.7	0.21	0.2
Freshwater drum	21	3.1	5.4 - 17.6	24.66	29.0
Bluntnose minnow	13	1.9	1.6 - 2.4	0.03	**
Western mosquitofish	10	1.5	0.8 - 1.5	0.01	**
Gizzard shad	9	1.3	3.2 - 13.9	2.60	3.1
Common carp	6	0.9	20.5 - 24.6	31.38	36.9
Flathead catfish	6	0.9	4.8 - 18.7	4.45	5.2
Silverjaw minnow	6	0.9	1.0 - 1.8	0.01	**
Shortnose gar	5	0.7	18.6 - 25.8	6.41	7.5
Longear sunfish	4	0.6	2.0 - 5.0	0.20	0.2
Spotted bass	4	0.6	3.5 - 7.9	0.46	0.5
Emerald shiner	3	0.4	2.7 - 3.3	0.02	**
Bluegill	2	0.3	2.3 - 2.5	0.02	**
Goldeye	2	0.3	11.9 - 15.0	1.47	1.7
Bigeye chub	1	0.1	2.3	*	**
Blue catfish	1	0.1	20.2	2.50	2.9
Blue sucker	1	0.1	20.9	2.91	3.4
Channel catfish	1	0.1	17.2	1.96	2.3
Dusky darter	1	0.1	2.3	0.01	**
Orangespotted sunfish	1	0.1	2.3	0.01	**
Sand shiner	1	0.1	1.7	*	**
Smallmouth buffalo	1	0.1	17.2	2.50	2.9
White bass	1	0.1	12.3	0.81	1.0
<b>Total - 26 Species</b>	677	100.0		85.06	100.0

\*Less than 0.01 lb.

\*\*Less than 0.1%.

DATE: 9/23/2004

STATION: RM 45.7 - EF/Seine Combined

NAME OF STREAM: White River

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Western mosquitofish	132	42.9	0.7 - 1.4	0.07	**
Spotfin shiner	52	16.9	0.9 - 2.5	0.07	**
Brook silverside	20	6.5	1.6 - 2.7	0.04	**
Freshwater drum	16	5.2	6.2 - 17.8	20.97	14.2
Gizzard shad	11	3.6	3.4 - 16.8	4.09	2.8
Common carp	10	3.2	19.9 - 22.6	42.52	28.7
Blackstripe topminnow	8	2.6	1.4 - 2.2	0.02	**
Flathead catfish	7	2.3	7.5 - 17.3	4.09	2.8
River carpsucker	7	2.3	15.1 - 17.8	14.28	9.6
Shortnose gar	7	2.3	18.0 - 24.4	8.34	5.6
Smallmouth buffalo	6	1.9	12.6 - 22.4	22.32	15.1
Spotted bass	5	1.6	2.9 - 12.0	1.52	1.0
Bluegill	3	1.0	0.9 - 1.5	*	**
Bluntnose minnow	3	1.0	0.7 - 1.6	*	**
Bullhead minnow	3	1.0	1.0 - 1.9	*	**
Longear sunfish	3	1.0	4.0 - 4.9	0.23	0.2
Longnose gar	3	1.0	27.5 - 45.0	16.55	11.2
Orangespotted sunfish	3	1.0	2.3 - 2.9	0.01	**
Bowfin	2	0.6	21.8 - 22.8	7.30	4.9
Eastern sand darter	2	0.6	2.0	*	**
Black crappie	1	0.3	12.2	1.11	0.7
Goldeye	1	0.3	14.4	0.88	0.6
Hybrid striped bass	1	0.3	16.1	1.67	1.1
Largemouth bass	1	0.3	12.5	0.94	0.6
White crappie	1	0.3	12.8	1.14	0.8
<b>Total - 25 Species</b>	308	100.0		148.16	100.0

\*Less than 0.01 lb.

\*\*Less than 0.1%.

DATE:9/21/04

STATION: RM 57.5 electrofishingNAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Shortnose gar	31	32.6	19.0 - 28.3	38.28	20.8
River carpsucker	17	17.9	2.6 - 17.8	19.68	10.7
Freshwater drum	8	8.4	10.1 - 15.5	7.61	4.1
Smallmouth buffalo	7	7.4	12.5 - 24.0	27.64	15.0
Common carp	5	5.3	18.1 - 23.5	22.56	12.3
Channel catfish	5	5.3	15.4 - 23.0	11.12	6.0
Black buffalo	4	4.2	20.4 - 32.9	38.00	20.7
Longnose gar	3	3.2	25.7 - 26.5	4.15	2.3
Spotted bass	2	2.1	6.4 - 8.2	0.42	0.2
Spotfin shiner	2	2.1	2.1 - 2.3	0.02	*
Bullhead minnow	2	2.1	1.9 - 2.9	0.02	*
Blue sucker	1	1.1	26.6	5.75	3.1
Quillback	1	1.1	18.7	3.45	1.9
Bigmouth buffalo	1	1.1	17.7	3.21	1.7
Goldeye	1	1.1	16.8	1.30	0.7
Flathead catfish	1	1.1	12.4	0.68	0.4
Shovelnose sturgeon	1	1.1	8.3	0.05	*
Bluegill	1	1.1	3.0	0.02	*
Threadfin shad	1	1.1	4.1	0.02	*
Yellow bass	1	1.1	3.4	0.01	*
<b>Totals - 20 Species</b>	95			183.99	

\*Less than 0.1%.

DATE:9/21/04

STATION: RM 57.5 seineNAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	475	70.7	0.7 - 2.3	0.55	47.0
Bullhead minnow	73	10.9	0.9 - 2.6	0.13	11.1
Mississippi silvery minnow	50	7.4	2.2 - 3.4	0.34	29.1
Sand shiner	42	6.3	1.1 - 1.9	0.07	6.0
Western mosquitofish	19	2.8	0.8 - 1.2	0.01	0.9
Bluntnose minnow	5	0.7	1.6 - 1.9	0.01	0.9
Suckermouth minnow	3	0.4	2.5 - 2.7	0.02	1.7
Channel catfish	2	0.3	1.9 - 2.0	0.01	0.9
River carpsucker	1	0.1	2.1	0.01	0.9
Emerald shiner	1	0.1	2.4	0.01	0.9
Speckled chub	1	0.1	1.4	0.01	0.9
<b>Totals - 11 Species</b>	672			1.17	

DATE:9/21/04

STATION: RM 61.52 electrofishing

NAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Freshwater drum	20	14.8	5.4 - 17.9	21.30	8.8
Common carp	16	11.9	15.3 - 27.2	77.87	32.3
Smallmouth buffalo	13	9.6	12.3 - 23.4	50.78	21.0
Shortnose gar	11	8.1	16.9 - 27.1	14.50	6.0
Spotted bass	10	7.4	3.1 - 9.9	1.50	0.6
Gizzard shad	9	6.7	3.2 - 12.3	2.67	1.1
River carpsucker	8	5.9	4.3 - 17.3	7.39	3.1
Channel catfish	7	5.2	3.5 - 21.9	8.22	3.4
Bigmouth buffalo	5	3.7	19.9 - 24.5	32.50	13.5
Bluegill	5	3.7	1.9 - 4.1	0.13	0.1
Shovelnose sturgeon	4	3.0	6.9 - 26.7	5.02	2.1
Bullhead minnow	4	3.0	2.2 - 2.9	0.03	*
Flathead catfish	3	2.2	12.8 - 19.3	4.50	1.9
Goldeye	3	2.2	15.6 - 17.1	3.88	1.6
Longear sunfish	3	2.2	2.2 - 3.8	0.10	*
Mississippi silvery minnow	3	2.2	3.4 - 3.7	0.07	*
Longnose gar	2	1.5	21.2 - 34.3	3.83	1.6
Spotfin shiner	2	1.5	2.2 - 2.4	0.02	*
Blue sucker	1	0.7	23.2	3.50	1.4
Quillback	1	0.7	18.1	2.92	1.2
Highfin carpsucker	1	0.7	11.2	0.61	0.3
Silver chub	1	0.7	4.8	0.04	*
Yellow bass	1	0.7	3.6	0.01	*
Green sunfish	1	0.7	2.3	0.01	*
Emerald shiner	1	0.7	3.6	0.01	*
<b>Totals - 25 Species</b>	135			241.41	

\*Less than 0.1%.

DATE:9/21/04

STATION: RM 61.52 seineNAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	663	85.2	0.6 - 2.8	1.79	80.6
Bullhead minnow	32	4.1	1.2 - 2.5	0.07	3.2
Mississippi silvery minnow	23	3.0	2.2 - 3.1	0.13	5.9
Western mosquitofish	14	1.8	0.4 - 1.0	0.01	0.5
Sand shiner	12	1.5	1.5 - 2.0	0.02	0.9
Brook silverside	9	1.2	2.0 - 2.4	0.02	0.9
Suckermouth minnow	8	1.0	2.7 - 3.2	0.06	2.7
Speckled chub	4	0.5	1.7 - 2.5	0.01	0.5
Bluntnose minnow	4	0.5	1.0 - 2.2	0.01	0.5
Shorthead redhorse	3	0.4	3.4 - 3.8	0.05	2.3
Golden redhorse	3	0.4	2.6 - 3.2	0.02	0.9
Steelcolor shiner	1	0.1	1.7	0.01	0.5
Channel shiner	1	0.1	2.6	0.01	0.5
Black redhorse	1	0.1	3.2	0.01	0.5
<b>Totals - 14 Species</b>	<b>778</b>			<b>2.22</b>	

DATE:9/22/04

STATION: RM 73.06 electrofishing

NAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Mississippi silvery minnow	19	13.0	2.8 - 3.7	0.31	0.1
Common carp	14	9.6	16.5 - 26.5	70.30	27.9
Smallmouth buffalo	12	8.2	12.5 - 22.8	31.87	12.7
Shortnose gar	12	8.2	17.5 - 23.2	13.12	5.2
Freshwater drum	11	7.5	4.9 - 18.9	16.33	6.5
Gizzard shad	9	6.2	3.8 - 11.1	1.06	0.4
Blue sucker	8	5.5	15.8 - 26.8	25.87	10.3
Channel catfish	8	5.5	16.8 - 23.4	19.37	7.7
River carpsucker	8	5.5	8.1 - 18.1	14.72	5.8
Spotted bass	8	5.5	5.6 - 12.3	2.46	1.0
Bullhead minnow	8	5.5	2.0 - 2.9	0.05	*
Quillback	6	4.1	9.2 - 18.0	10.28	4.1
Flathead catfish	5	3.4	9.2 - 18.6	6.20	2.5
White bass	3	2.1	4.5 - 13.1	1.20	0.5
Bigmouth buffalo	2	1.4	23.3 - 27.1	21.00	8.3
Shovelnose sturgeon	2	1.4	24.3 - 25.7	4.38	1.7
Goldeye	2	1.4	15.3 - 16.4	2.67	1.1
Spotfin shiner	2	1.4	2.2 - 2.4	0.02	*
Grass carp	1	0.7	28.0	9.50	3.8
Sauger	1	0.7	15.1	1.04	0.4
Chestnut lamprey	1	0.7	7.9	0.04	*
Bluegill	1	0.7	4.0	0.03	*
Emerald shiner	1	0.7	3.4	0.02	*
Sand shiner	1	0.7	2.1	0.01	*
River shiner	1	0.7	2.7	0.01	*
<b>Totals - 25 Species</b>	146			251.86	

Less than 0.1%.

DATE:9/22/04

STATION: RM 73.06 seine

NAME OF STREAM: WFWR

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Bullhead minnow	140	48.1	0.9 - 2.6	0.29	43.9
Western mosquitofish	74	25.4	0.9 - 1.8	0.07	10.6
Brook silverside	47	16.2	2.0 - 2.6	0.09	13.6
Spotfin shiner	16	5.5	1.0 - 2.2	0.03	4.5
Sand shiner	8	2.7	1.2 - 2.1	0.02	3.0
Gizzard shad	3	1.0	4.3 - 4.4	0.09	13.6
Bluntnose minnow	2	0.7	2.1 - 2.3	0.01	1.5
Freshwater drum	1	0.3	4.9	0.06	9.1
<b>Totals - 8 Species</b>	291			0.66	

DATE:9/20/04

STATION: RM 84.50 electrofishing

NAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Gizzard shad	28	18.1	4.0 - 13.5	5.40	1.7
Common carp	19	12.3	15.9 - 25.3	91.48	29.0
Freshwater drum	14	9.0	10.7 - 17.6	18.01	5.7
River carpsucker	11	7.1	9.0 - 18.2	13.14	4.2
Channel catfish	10	6.5	10.4 - 24.9	17.99	5.7
Blue sucker	9	5.8	22.6 - 27.6	48.25	15.3
Smallmouth buffalo	9	5.8	18.6 - 20.9	36.10	11.5
Mississippi silvery minnow	9	5.8	3.0 - 3.7	0.21	0.1
Spotted bass	7	4.5	6.0 - 10.2	1.68	0.5
Goldeye	6	3.9	13.5 - 16.1	5.98	1.9
Flathead catfish	6	3.9	6.6 - 13.6	3.68	1.2
Bigmouth buffalo	4	2.6	20.0 - 28.1	28.50	9.0
Quillback	4	2.6	9.8 - 16.8	7.49	2.4
Shortnose gar	4	2.6	18.5 - 24.8	6.46	2.0
Longnose gar	4	2.6	20.6 - 26.8	4.86	1.5
Bullhead minnow	4	2.6	2.1 - 3.1	0.02	*
Grass carp	1	0.6	36.3	19.50	6.2
Black buffalo	1	0.6	21.1	5.00	1.6
White bass	1	0.6	12.5	0.86	0.3
Shorthead redhorse	1	0.6	9.9	0.30	0.1
White crappie	1	0.6	8.0	0.24	0.1
Chestnut lamprey	1	0.6	7.4	0.03	*
Bluegill	1	0.6	3.2	0.02	*
<b>Totals - 23 Species</b>	155			315.20	

\*Less than 0.1%.

DATE:9/20/04

STATION: RM 84.50 seineNAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	445	89.9	0.9 - 2.8	0.72	78.3
Bullhead minnow	21	4.2	0.9 - 2.4	0.06	6.5
Bluntnose minnow	6	1.2	1.4 - 2.1	0.02	2.2
Sand shiner	6	1.2	1.3 - 1.9	0.01	1.1
Brook silverside	5	1.0	2.0 - 2.6	0.01	1.1
Mississippi silvery minnow	3	0.6	3.2 - 3.5	0.04	4.3
Redfin shiner	3	0.6	1.3 - 1.5	0.01	1.1
Steelcolor shiner	2	0.4	1.2 - 1.3	0.01	1.1
River carpsucker	1	0.2	2.2	0.01	1.1
Channel catfish	1	0.2	1.8	0.01	1.1
Johnny darter	1	0.2	1.7	0.01	1.1
Suckermouth minnow	1	0.2	2.8	0.01	1.1
<b>Totals - 12 Species</b>	495			0.92	

DATE:9/20/04

STATION: RM 101.4 electrofishing

NAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Mississippi silvery minnow	32	18.6	2.9 - 3.8	0.48	0.2
River carpsucker	31	18.0	1.4 - 16.6	22.90	10.2
Gizzard shad	18	10.5	4.2 - 13.9	3.72	1.7
Blue sucker	17	9.9	20.1 - 30.7	86.57	38.7
Freshwater drum	9	5.2	8.9 - 16.4	10.61	4.7
Shortnose gar	8	4.7	20.0 - 23.2	8.99	4.0
Spotfin shiner	8	4.7	1.5 - 2.5	0.02	*
Smallmouth buffalo	7	4.1	15.0 - 23.1	25.20	11.3
Quillback	6	3.5	8.7 - 16.4	7.93	3.5
Longnose gar	6	3.5	20.7 - 26.1	6.15	2.7
Common carp	5	2.9	19.1 - 23.1	24.44	10.9
Sand shiner	4	2.3	1.4 - 1.9	0.01	*
Bullhead minnow	3	1.7	2.6 - 2.7	0.02	*
Channel catfish	2	1.2	19.4 - 21.3	4.76	2.1
Shovelnose sturgeon	2	1.2	24.8 - 25.8	4.63	2.1
Goldeye	2	1.2	16.2 - 16.7	2.65	1.2
Sauger	2	1.2	14.7 - 15.5	1.81	0.8
White bass	2	1.2	9.4 - 12.0	1.11	0.5
Highfin carpsucker	2	1.2	7.4 - 7.6	0.42	0.2
Bigmouth buffalo	1	0.6	23.5	9.25	4.1
Black buffalo	1	0.6	15.4	1.83	0.8
Spotted bass	1	0.6	6.4	0.14	0.1
Longear sunfish	1	0.6	4.9	0.09	*
Yellow bass	1	0.6	4.1	0.03	*
Mountain madtom	1	0.6	1.7	0.01	*
<b>Totals - 25 Species</b>	172			223.77	

\*Less than 0.1%.

DATE:9/20/04

STATION: RM 101.4 seineNAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	725	73.8	0.6 - 2.7	0.80	57.7
Sand shiner	187	19.0	0.8 - 2.1	0.32	23.1
Bullhead minnow	55	5.6	0.6 - 1.3	0.02	1.4
Mississippi silvery minnow	7	0.7	3.4 - 3.5	0.11	7.9
River carpsucker	4	0.4	1.7 - 4.2	0.09	6.5
Silverjaw minnow	1	0.1	2.1	0.01	0.7
Bluntnose minnow	1	0.1	1.3	0.01	0.7
Stoneroller	1	0.1	2.3	0.01	0.7
Western mosquitofish	1	0.1	1.0	0.01	0.7
Emerald shiner	1	0.1	3.3	0.01	0.5
<b>Totals - 10 Species</b>	983			1.39	

DATE:9/20/2004

STATION: RM 105.7, Elnora electrofishing

NAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Common carp	19	14.4	13.9 - 26.0	104.12	43.1
Quillback	17	12.9	8.4 - 16.2	21.96	9.1
Smallmouth buffalo	14	10.6	11.0 - 27.0	35.67	14.8
Gizzard shad	13	9.8	4.4 - 10.7	2.39	1.0
Shortnose gar	11	8.3	18.6 - 23.0	12.00	5.0
River carpsucker	9	6.8	1.3 - NA	12.50	5.2
Freshwater drum	6	4.5	5.7 - 17.4	9.20	3.8
Spotted bass	6	4.5	2.2 - 10.4	0.83	0.3
Channel catfish	5	3.8	7.9 - 21.6	8.73	3.6
Bluegill	5	3.8	2.1 - 6.0	0.22	0.1
Sand shiner	3	2.3	2.2	*	**
Longnose gar	3	2.3	19.9 - 26.3	2.75	1.1
Flathead catfish	3	2.3	11.4 - 21.1	4.68	1.9
White bass	3	2.3	3.2 - 12.9	1.04	0.4
Grass carp	2	1.5	29.3 - 34.0	22.50	9.3
Goldeye	2	1.5	14.2 - 15.3	1.96	0.8
Orangespotted sunfish	2	1.5	2.5	0.20	0.1
Mississippi silvery minnow	3	1.5	3.6	0.02	**
Green sunfish	2	1.5	2.1 - 2.4	0.01	**
Central stoneroller	1	0.8	2.8	*	**
Bluntnose minnow	1	0.8	1.8	*	**
Hybrid sunfish	1	0.8	3.8	0.05	**
White crappie	1	0.8	10.6	0.57	0.2
<b>Total - 22 Species and 1 hybrid</b>	132	100.0		241.40	100.0

\*Less than 0.01 lb.

\*\*Less than 0.1%.

DATE:9/20/2004

STATION: RM 105.7, Elnora seine

NAME OF STREAM: WFWR

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	1158	76.1	1.0 - 2.5	0.95	59.0
Sand shiner	207	13.6	1.2 - 2.4	0.32	19.9
Bluntnose minnow	91	6.0	0.9 - 2.6	0.02	1.2
Bullhead minnow	52	3.4	1.3 - 3.0	0.03	1.9
Dusky darter	5	0.3	1.4 - 2.8	0.05	3.1
Quillback	4	0.3	1.8 - 2.4	0.20	12.4
River carpsucker	4	0.3	1.3 - 2.8	0.01	0.6
Gizzard shad	1	0.1	4.4	0.03	1.9
<b>Total - 8 Species</b>	1522	100.0		1.61	100.0

DATE:9/23/2004

STATION: RM 115.5, Plummer electrofishing

NAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
River carpsucker	31	24.6	11.0 - 17.4	52.10	19.2
Common carp	19	15.1	18.0 - 28.5	118.75	43.7
Freshwater drum	17	13.5	10.4 - 24.1	29.71	10.9
Spotted bass	12	9.5	3.2 - 12.0	3.40	1.3
Channel catfish	8	6.3	10.4 - 22.0	12.47	4.6
Longear sunfish	6	4.8	3.5 - 5.2	0.44	0.2
Gizzard shad	6	4.8	10.0 - 13.0	2.75	1.0
Smallmouth buffalo	3	2.4	17.5 - 23.2	14.94	5.5
Bluntnose minnow	3	2.4	1.4 - 2.7	*	**
Slenderhead darter	3	2.4	2.4 - 3.2	0.02	**
Flathead catfish	2	1.6	14.5 - 16.0	2.63	1.0
Bigmouth buffalo	2	1.6	18.3 - 24.3	10.70	3.9
Chestnut lamprey	2	1.6	7.9 - 11.1	0.15	0.1
Black buffalo	1	0.8	24.3	5.75	2.1
White bass	1	0.8	10.3	0.47	0.2
Sauger	1	0.8	15.5	1.10	0.4
Highfin carpsucker	1	0.8	13.0	1.15	0.4
Mirror carp	1	0.8	29.0	12.25	4.5
Silver redhorse	1	0.8	13.7	1.05	0.4
Shorthead redhorse	1	0.8	17.8	1.77	0.7
Hybrid sunfish	1	0.8	2.7	0.01	**
Bluegill	1	0.8	2.1	*	**
Spotfin shiner	1	0.8	2.2	*	**
Mississippi silvery minnow	1	0.8	3.7	0.02	**
Dusky darter	1	0.8	1.8	*	**
<b>Total - 24 Species and 1 hybrid</b>	126	100.0		271.63	100.0

\*Less than 0.01 lb.

\*\*Less than 0.1%.

DATE:9/23/2004

STATION: RM 115.5, Plummer seineNAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	386	39.3	0.7 - 2.2	0.23	13.6
Western mosquitofish	292	29.8	0.5 - 1.7	0.12	7.1
Bullhead minnow	247	25.2	0.9 - 1.3	0.15	8.9
Sand shiner	19	1.9	0.9 - 2.6	*	**
Brook silverside	13	1.3	2.1 - 3.0	0.04	2.4
Bluntnose minnow	11	1.1	1.0 - 2.4	0.06	3.6
Redfin shiner	11	1.1	1.2 - 2.0	*	**
Gizzard shad	1	0.1	3.2	0.02	1.2
Freshwater drum	1	0.1	13.4	1.07	63.3
<b>Total - 9 Species</b>	981	100.0		1.69	100.0

\*Less than 0.01 lb.

\*\*Less than 0.1%.

DATE: 9/21/2004

STATION: RM 125.0, Bloomfield electrofishingNAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Shortnose gar	17	14.0	21.8 - 29.5	24.00	8.3
Common carp	16	13.2	19.9 - 28.7	89.50	30.9
River carpsucker	15	12.4	10.1 - 16.7	23.00	7.9
Smallmouth buffalo	14	11.6	13.5 - 28.0	65.50	22.6
Gizzard shad	14	11.6	9.8 - 12.1	5.50	1.9
Freshwater drum	9	7.4	9.2 - 15.3	8.35	2.9
Longnose gar	6	5.0	25.2 - 30.5	9.20	3.2
Spotted bass	4	3.3	3.7 - 14.2	3.13	1.1
Blue sucker	4	3.3	22.9 - 29.8	23.82	8.2
Channel catfish	3	2.5	12.7 - 22.6	3.98	1.4
White bass	3	2.5	12.0 - 15.3	3.36	1.2
Hybrid striped bass	3	2.5	16.8 - 26.5	10.75	3.7
White crappie	2	1.7	7.1 - 8.7	0.37	0.1
Sauger	2	1.7	14.2 - 18.4	2.19	0.8
Golden redhorse	2	1.7	13.2 - 13.7	1.93	0.7
Shorthead redhorse	2	1.7	15.7 - 17.3	3.45	1.2
Silver redhorse	1	0.8	24.1	5.50	1.9
Bigmouth buffalo	1	0.8	19.9	4.20	1.4
Longear sunfish	1	0.8	4.8	0.05	*
Shovelnose sturgeon	1	0.8	24.9	1.85	0.6
Yellow bass	1	0.8	9.1	0.36	0.1
<b>Total - 20 Species and 1 hybrid</b>	<b>121</b>	<b>100.0</b>		<b>289.99</b>	<b>100.0</b>

\*Less than 0.1%.

STATION: RM 125.0, Bloomfield seine

NAME OF STREAM: WFWR

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	4614	83.8	0.8 - 2.8	7.82	75.8
Sand shiner	368	6.7	1.1 -2.4	0.77	7.5
Bullhead minnow	182	3.3	1.7 - 2.6	0.33	3.2
Brook silverside	132	2.4	1.7 - 2.8	0.40	3.9
Western mosquitofish	104	1.9	0.6 - 1.8	0.61	5.9
Bluntnose minnow	39	0.7	1.2 - 2.7	0.18	1.7
River carpsucker	29	0.5	1.3 - 2.7	0.07	0.7
Striped shiner	14	0.3	2.5 - 2.6	0.06	0.6
Mississippi silvery minnow	4	0.1	3.2 - 3.5	0.03	0.3
Steelcolor shiner	4	0.1	1.2 - 2.4	0.01	0.1
Central stoneroller	3	0.1	2.8 - 3.2	*	**
Silverjaw minnow	3	0.1	2.3 - 2.6	*	**
Mountain madtom	3	0.1	1.6 - 2.0	0.01	0.1
Shorthead redhorse	2	0.0	3.1 - 3.2	0.02	0.2
Green sunfish	2	0.0	1.4 - 1.7	*	**
Gizzard shad	1	0.0	2.3	0.01	0.1
Dusky darter	1	0.0	1.4	*	**
Redfin shiner	1	0.0	1.1	*	**
Emerald shiner	1	0.0	2.1	*	**
<b>Total - 19 Species</b>	5507	100.0		10.32	100.0

\*Less than 0.01 lb.

\*\*Less than 0.1%.

DATE:9/21/2004

STATION: RM 134.7, Worthington electrofishingNAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	120	61.9	1.3 - 2.4	0.35	0.2
Gizzard shad	14	7.2	8.9 - 12.2	5.68	2.6
Smallmouth buffalo	12	6.2	11.6 - 28.1	73.50	33.1
River carpsucker	9	4.6	13.9 - 18.1	15.50	7.0
Shortnose gar	8	4.1	16.9 - 22.6	9.50	4.3
Common carp	6	3.1	17.7 - 26.7	37.48	16.9
Longnose gar	5	2.6	23.1 - 37.0	9.80	4.4
Goldeye	5	2.6	14.4 - 17.2	5.92	2.7
Bigmouth buffalo	5	2.6	23.7 - 24.6	32.25	14.5
Freshwater drum	3	1.5	13.1 - 15.7	3.84	1.7
Blue sucker	2	1.0	21.3 - 24.7	8.13	3.7
Grass carp	1	0.5	31.0	10.00	4.5
Hybrid striped bass	1	0.5	25.5	7.00	3.2
Yellow bass	1	0.5	3.8	0.03	*
Sauger	1	0.5	17.8	1.42	0.6
White bass	1	0.5	15.9	1.42	0.6
<b>Total -15 Species and 1 hybrid</b>	194	100.0		221.82	100.0

\*Less than 0.1%.

DATE:9/21/2004

STATION: RM 134.7, Worthington seineNAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	938	79.0	1.1 - 2.4	0.72	74.2
Bullhead minnow	139	11.7	1.0 - 1.8	0.07	7.2
Brook silverside	29	2.4	2.1 - 2.7	*	**
Sand shiner	28	2.4	0.8 - 1.8	0.01	1.0
Western mosquitofish	19	1.6	0.7 - 1.4	0.01	1.0
Bluntnose minnow	16	1.3	0.9 - 2.2	0.01	1.0
Mississippi silvery minnow	8	0.7	3.0 - 3.8	0.12	12.4
River carpsucker	6	0.5	1.5 - 1.9	0.01	1.0
Smallmouth buffalo	3	0.3	1.0 - 1.1	*	**
Gizzard shad	1	0.1	4.3	0.02	2.1
<b>Total - 10 Species</b>	1187	100.0		0.97	100.0

\*Less than 0.01 lb.

\*\*Less than 0.1%.

DATE:9/21/2004

STATION: RM 145.1, Farmers electrofishingNAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
River carpsucker	28	28.6	10.6 - 17.2	43.50	20.5
Shortnose gar	12	12.2	19.5 - 24.0	14.92	7.0
Flathead catfish	6	6.1	11.9 - 33.0	19.59	9.3
Freshwater drum	6	6.1	13.5 - 21.0	11.82	5.6
Gizzard shad	6	6.1	8.1 - 11.3	2.08	1.0
Common carp	6	6.1	22.4 - 26.4	44.00	20.8
Spotted bass	5	5.1	3.4 - 10.4	0.74	0.3
Blue sucker	5	5.1	23.5 - 27.6	20.43	9.6
Highfin carpsucker	5	5.1	11.0 - 16.7	5.87	2.8
Channel catfish	3	3.1	11.0 - 19.9	4.49	2.1
Bigmouth buffalo	3	3.1	19.0 - 22.9	17.08	8.1
Longnose gar	3	3.1	24.4 - 26.1	3.85	1.8
Goldeye	2	2.0	14.9	2.26	1.1
Shovelnose sturgeon	2	2.0	24.4 - 28.6	2.86	1.4
Bluegill	1	1.0	6.0	0.21	0.1
Grass carp	1	1.0	33.0	11.00	5.2
Silver redhorse	1	1.0	20.2	3.53	1.7
Smallmouth buffalo	1	1.0	21.9	3.50	1.7
Bluntnose minnow	1	1.0	2.1	*	**
Spotfin shiner	1	1.0	2.5	*	**
<b>Total - 20 Species</b>	<b>98</b>	<b>100.0</b>		<b>211.73</b>	<b>100.0</b>

\*Less than 0.01 lb.

\*\*Less than 0.1%.

DATE:9/21/2004

STATION: RM 145.1, Farmers seine

NAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	556	63.0	0.8 - 2.9	0.56	46.3
Bluntnose minnow	105	11.9	1.0 - 2.9	0.20	16.5
Sand shiner	97	11.0	1.2 - 2.1	0.13	10.7
Bullhead minnow	69	7.8	1.0 - 1.6	0.05	4.1
Western mosquitofish	27	3.1	1.0 - 1.9	0.02	1.7
River carpsucker	10	1.1	1.8 - 3.2	0.11	9.1
Spotted bass	4	0.5	2.9 - 4.2	0.06	5.0
Silverjaw minnow	3	0.3	1.2 - 1.4	*	**
Redfin shiner	3	0.3	1.1 - 1.2	*	**
Yellow bass	1	0.1	4.4	0.03	2.5
Dusky darter	1	0.1	2.2	*	**
Gizzard shad	1	0.1	5.0	0.04	3.3
Bluegill	1	0.1	2.2	*	**
Mottled sculpin	1	0.1	1.6	*	**
Brook silverside	1	0.1	2.6	*	**
Mississippi silvery minnow	1	0.1	3.0	0.01	0.8
Smallmouth buffalo	1	0.1	0.9	*	**
<b>Total -17 Species</b>	882	100.0		1.21	100.0

\*Less than 0.01 lb.

\*\*Less than 0.1%.

DATE: 9/21/04

STATION: RM 156.36, Pottersville electrofishingNAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
River carpsucker	46	31.1	10.7 - 17.6	69.78	21.8
Gizzard shad	34	23.0	4.5 - 14.1	13.99	4.4
Smallmouth buffalo	17	11.5	13.5 - 25.3	92.36	28.9
Freshwater drum	11	7.4	5.5 - 14.5	8.75	2.7
Common carp	9	6.1	19.9 - 26.7	65.50	20.5
Shortnose gar	8	5.4	20.3 - 22.0	8.89	2.8
Bigmouth buffalo	3	2.0	21.7 - 22.7	20.44	6.4
Spotted bass	3	2.0	4.1 - 13.7	2.37	0.7
Blue sucker	2	1.4	26.0	12.63	3.9
Flathead catfish	2	1.4	11.0 - 19.9	3.30	1.0
Sauger	2	1.4	13.8 - 17.7	2.15	0.7
Channel catfish	2	1.4	10.3 - 14.3	1.09	0.3
White bass	2	1.4	8.8 - 10.0	0.69	0.2
Black buffalo	1	0.7	27.2	10.75	3.4
Longnose gar	1	0.7	31.8	3.15	1.0
Quillback	1	0.7	14.7	1.41	0.4
Golden redhorse	1	0.7	13.3	1.06	0.3
Goldeye	1	0.7	14.8	1.01	0.3
Highfin carpsucker	1	0.7	10.0	0.46	0.1
Dusky darter	1	0.7	3.0	0.01	*
<b>Total - 20 Species</b>	<b>148</b>	<b>100.0</b>		<b>319.79</b>	<b>100.0</b>

\*Less than 0.1%.

DATE: 9/21/04

STATION: RM 156.36, Pottersville seine

NAME OF STREAM: West Fork White River

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	2,906	74.0	0.6 - 2.9	3.64	62.1
Bullhead minnow	488	12.4	0.8 - 3.0	1.14	19.5
Bluntnose minnow	208	5.3	0.8 - 2.5	0.31	5.3
Sand shiner	100	2.5	0.8 - 2.3	0.12	2.0
Steelcolor shiner	84	2.1	0.9 - 2.3	0.10	1.7
Western mosquitofish	44	1.1	0.7 - 1.4	0.03	0.5
Smallmouth buffalo	40	1.0	1.1 - 2.8	0.15	2.6
Brook silverside	16	0.4	2.1 - 2.7	0.05	0.9
River carpsucker	10	0.3	1.8 - 2.8	0.05	0.9
Silverjaw minnow	10	0.3	1.0 - 2.1	0.02	0.3
Quillback	9	0.2	1.4 - 2.5	0.04	0.7
Gizzard shad	4	0.1	3.9 - 4.9	0.12	2.0
Striped shiner	4	0.1	2.0 - 2.3	0.02	0.3
Spotted bass	1	*	4.0	0.03	0.5
Golden redbreast	1	*	3.2	0.02	0.3
Central stoneroller	1	*	2.7	0.01	0.2
Rainbow darter	1	*	1.7	0.01	0.2
<b>Total - Species 17</b>	<b>3,927</b>	<b>100.0</b>		<b>5.86</b>	<b>100.0</b>

\*Less than 0.1%.

DATE: 9/20/04

STATION: RM 164.53, Spencer electrofishing

NAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Gizzard shad	53	29.6	4.4 - 13.0	12.69	4.9
River carpsucker	21	11.7	12.9 - 16.0	33.77	13.1
Smallmouth buffalo	12	6.7	18.9 - 24.0	66.46	25.7
Shortnose gar	10	5.6	20.5 - 25.0	14.38	5.6
Spotfin shiner	10	5.6	1.4 - 2.7	0.04	*
Common carp	9	5.0	19.7 - 27.5	56.17	21.7
Channel catfish	9	5.0	11.5 - 20.1	10.93	4.2
Spotted bass	9	5.0	3.4 - 12.3	3.09	1.2
Freshwater drum	6	3.4	12.3 - 15.5	7.09	2.7
Sand shiner	5	2.8	2.1 - 2.4	0.02	*
Steelcolor shiner	4	2.2	1.4 - 3.2	0.03	*
Bigmouth buffalo	3	1.7	22.5	19.06	7.4
Black buffalo	3	1.7	13.7 - 23.5	10.63	4.1
Sauger	3	1.7	14.0 - 15.4	2.90	1.1
White bass	3	1.7	9.2 - 12.9	1.71	0.7
Suckermouth minnow	3	1.7	3.3 - 3.5	0.05	*
Shorthead redhorse	2	1.1	4.6 - 18.8	2.73	1.1
Chestnut lamprey	2	1.1	8.9 - 9.8	0.13	0.1
Longear sunfish	2	1.1	4.0 - 4.3	0.12	*
Mississippi silvery minnow	2	1.1	3.7 - 3.8	0.04	*
Bullhead minnow	2	1.1	2.4 - 2.5	0.01	*
Striped bass	1	0.6	29.5	10.75	4.2
Blue sucker	1	0.6	21.3	2.92	1.1
Quillback	1	0.6	16.2	1.89	0.7
Flathead catfish	1	0.6	13.4	0.92	0.4
Smallmouth bass	1	0.6	7.0	0.16	0.1
Bluntnose minnow	1	0.6	2.6	0.01	*
<b>Total - Species 27</b>	<b>179</b>	<b>100.0</b>		<b>258.70</b>	<b>100.0</b>

\*Less than 0.1%.

DATE: 9/20/04

STATION: RM 164.53, Spencer seine

NAME OF STREAM: WFWR

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	2,071	63.4	0.7 - 2.8	2.82	53.8
Bluntnose minnow	399	12.2	1.0 - 2.8	0.74	14.1
Sand shiner	283	8.7	0.9 - 2.4	0.52	9.9
Bullhead minnow	212	6.5	0.9 - 2.4	0.25	4.8
Steelcolor shiner	80	2.4	0.8 - 2.1	0.11	2.1
Silverjaw minnow	70	2.1	1.4 - 2.4	0.14	2.7
Brook silverside	37	1.1	1.8 - 3.0	0.09	1.7
Smallmouth buffalo	33	1.0	1.6 - 2.7	0.16	3.1
Western mosquitofish	31	0.9	0.6 - 1.9	0.02	0.4
River carpsucker	17	0.5	1.8 - 2.7	0.12	2.3
Quillback	13	0.4	1.5 - 2.8	0.09	1.7
Bluegill	6	0.2	1.0 - 2.2	0.02	0.4
Golden redhorse	4	0.1	3.2 - 3.6	0.07	1.3
Spotted bass	3	0.1	3.5 - 3.6	0.06	1.1
Rosyface shiner	3	0.1	1.5 - 1.8	*	**
Striped shiner	2	0.1	2.2 - 2.3	0.01	0.2
Central stoneroller	1	**	2.6	0.01	0.2
Gizzard shad	1	**	2.4	0.01	0.2
Bigeye chub	1	**	2.2	*	**
Dusky darter	1	**	1.7	*	**
Redfin shiner	1	**	1.7	*	**
<b>Total - Species 21</b>	3,269	100.0		5.24	100.0

\*Less than 0.01 lb.

\*\*Less than 0.1%.

DATE: 9/28/04

STATION: RM 194.09, Martinsville electrofishing

NAME OF STREAM: West Fork White River

## NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Gizzard shad	28	16.3	5.0 - 10.5	4.67	3.0
Suckermouth minnow	26	15.1	3.2 - 3.6	0.42	0.3
Central stoneroller	15	8.7	2.8 - 3.3	0.16	0.1
Channel catfish	14	8.1	4.8 - 25.6	20.71	13.5
River carpsucker	12	7.0	9.9 - 16.3	15.77	10.3
Spotted bass	11	6.4	4.0 - 12.8	6.14	4.0
Spotfin shiner	9	5.2	1.4 - 3.1	0.05	*
Sand shiner	9	5.2	2.0 - 2.3	0.04	*
Smallmouth buffalo	6	3.5	9.4 - 20.6	19.92	13.0
Northern hogsucker	6	3.5	4.0 - 5.4	0.21	0.1
Sauger	5	2.9	12.4 - 18.5	5.92	3.9
Common carp	4	2.3	20.8 - 26.5	28.69	18.7
Golden redhorse	3	1.7	14.2 - 14.4	3.84	2.5
Shorthead redhorse	3	1.7	11.1 - 17.0	3.34	2.2
Smallmouth bass	3	1.7	8.5 - 12.5	1.91	1.2
Logperch	3	1.7	3.8 - 5.8	0.10	0.1
Longnose gar	2	1.2	37.5 - 38.0	10.50	6.8
Bigmouth buffalo	2	1.2	14.2 - 20.2	6.83	4.4
Quillback	2	1.2	14.8 - 17.8	4.44	2.9
Freshwater drum	2	1.2	13.3 - 14.1	1.40	0.9
Flathead catfish	1	0.6	29.2	11.63	7.6
Silver redhorse	1	0.6	22.6	5.15	3.4
Shortnose gar	1	0.6	23.0	1.55	1.0
Bluegill	1	0.6	4.3	0.05	*
Longear sunfish	1	0.6	3.6	0.03	*
Bullhead minnow	1	0.6	2.4	0.01	*
Steelcolor shiner	1	0.6	3.1	0.01	*
<b>Total - Species 27</b>	172	100.0		153.49	100.0

\*Less than 0.1%.

DATE: 9/28/04

STATION: RM 194.09, Martinsville seine

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	1,941	80.0	0.6 - 2.7	1.78	53.3
Steelcolor shiner	167	6.9	1.0 - 2.9	0.15	4.5
Sand shiner	127	5.2	1.0 - 2.4	0.22	6.6
Bullhead minnow	88	3.6	0.9 - 2.9	0.07	2.1
Silverjaw minnow	78	3.2	1.2 - 2.6	0.15	4.5
Bluntnose minnow	23	0.9	1.2 - 2.3	0.03	0.9
White bass	1	*	12.4	0.91	27.2
Mississippi silvery minnow	1	*	4.0	0.03	0.9
<b>Total - Species 8</b>	2,426	100.0		3.34	100.0

\*Less than 0.1%.

## APPENDIX E

STREAM HABITAT EVALUATION FORMS FOR EACH SITE, WFWR 2004

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: White River RIVER MILE: 3.6

NEAREST TOWN: Mt. Carmel, IL COUNTY: Gibson/Pike

QUADRANGLE: East Mount Carmel TWP: 1S RNG: 11W SEC: 18

LATITUDE: Upstream 4253626 N LONGITUDE: Upstream 16 439929 E

LATITUDE: Middle 4253418 N LONGITUDE: Middle 16 439521 E

LATITUDE: Downstream 4253150 N LONGITUDE: Downstream 16 439264 E

U.S.G.S. GAUGING STATION LOCATION: Petersburg AVG. DISCHARGE (cfs): 2580

IS REACH REPRESENTATIVE OF STREAM (Y/N) No IF NOT, WHY? Sampled below Kelly's Ripple, riffles are few and far between in this area

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Launched at Mt. Carmel, IL ramp, motored across Wabash River and up the White 3.6 miles

**COLLECTION SUMMARY**

DATE: 9/16/2004 GEAR: DC Boat Electrofishing EFFORT: 1 hour

CREW: Stefanavage, Hansen, Ferguson

OTHER GEAR/EFFORT: Seine - 4, 50 ft. hauls WATER STAGE: low

CANOPY (%OPEN): 100% PHOTOS (Y/N): N SECCHI DISK (inches): 14"

AIR TEMP (F): 82.9 WATER TEMP (F): 80.1 D.O. (ppm): 8

CONDUCTIVITY: 656 pH: 9 ALKALINITY: 136.8

TDS: \_\_\_\_\_

STREAM MEASUREMENTS AVG. WIDTH: 506.4 AVG. DEPTH: 38.4 MAX DEPTH: 75.6

STATION LENGTH: (1st date) 2796 (2nd date) \_\_\_\_\_

WIDTH (ft)		DEPTH (in)	
522	25.2	24	27.6
483	49.2	42	24
522	36	36	49.2
480	25.2	28.8	75.6
525	31.2	43.2	57.6

<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">7</div> <p>SUBJECTIVE RATING (1-10)</p>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">7</div> <p>AESTHETIC RATING (1-10)</p>
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ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_

\_\_\_\_\_

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: White River RIVER MILE: 15.9

NEAREST TOWN: Hazelton, IN COUNTY: Gibson/Knox

QUADRANGLE: Patoka TWP: 1N RNG: 11W SEC: 25

LATITUDE: Upstream 4260778 N LONGITUDE: Upstream 16 448631 E

LATITUDE: Middle 4259984 N LONGITUDE: Middle 16 448972 E

LATITUDE: Downstream 4259728 N LONGITUDE: Downstream 16 449477 E

U.S.G.S. GAUGING STATION LOCATION: Petersburg AVG. DISCHARGE (cfs): 2200

IS REACH REPRESENTATIVE OF STREAM (Y/N) No IF NOT, WHY? Sampled along north side of island although south side was dried up. Site had better habitat than typical in area.

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Launched at DFW public access site in Hazelton and motored ~2.9 miles downstream to island. Sampled from head of island downstream, 30 minutes along each bank.

**COLLECTION SUMMARY**

DATE: 9/20/2004 GEAR: DC Boat Electrofishing EFFORT: 1 hour

CREW: Stefanavage, Hansen, Ferguson

OTHER GEAR/EFFORT: Seine - 4, 50 ft. hauls WATER STAGE: low

CANOPY (%OPEN): 100% PHOTOS (Y/N): N SECCHI DISK (inches): 12"

AIR TEMP (F): 76.3 WATER TEMP (F): 76.6 D.O. (ppm): 10

CONDUCTIVITY: 678 pH: 9 ALKALINITY: 171

TDS: \_\_\_\_\_

STREAM MEASUREMENTS AVG. WIDTH: 329.4 AVG. DEPTH: 69.6 MAX DEPTH: 144

STATION LENGTH: (1st date) 4758 (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
315	33.6	42	48
339	24	48	61.2
267	55.2	82.8	96
384	58.8	60	55.2
342	110.4	129.6	144

<div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">8</div> <p>SUBJECTIVE RATING (1-10)</p>	<div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">8</div> <p>AESTHETIC RATING (1-10)</p>
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ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: White River RIVER MILE: 24.3  
 NEAREST TOWN: Decker, IN COUNTY: Gibson/Knox  
 QUADRANGLE: Decker TWP: 1N RNG: 10W SEC: 22  
 LATITUDE: Upstream 4261840 N LONGITUDE: Upstream 16 455064 E  
 LATITUDE: Middle 4261870 N LONGITUDE: Middle 16 454608 E  
 LATITUDE: Downstream 4261271 N LONGITUDE: Downstream 16 453887 E  
 U.S.G.S. GAUGING STATION LOCATION: Petersburg AVG. DISCHARGE (cfs): 2250  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Yes IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Launched at DFW public access site in Hazelton and motored approx. 5.6 miles upstream. Station started at downstream most house along farm land on south bank. Electrofished for 30 minutes along each bank.

**COLLECTION SUMMARY**

DATE: 9/21/2004 GEAR: DC Boat Electrofishing EFFORT: 1 hour  
 CREW: Stefanavage, Hansen, Ferguson  
 OTHER GEAR/EFFORT: Seine - 4, 50 ft. hauls WATER STAGE: low  
 CANOPY (%OPEN): 100% PHOTOS (Y/N): N SECCHI DISK (inches): 9"  
 AIR TEMP (F): 72.9 WATER TEMP (F): 78.1 D.O. (ppm): 13  
 CONDUCTIVITY: 672 pH: 9 ALKALINITY: 153.9  
 TDS: \_\_\_\_\_  
 STREAM MEASUREMENTS AVG. WIDTH: 245.6 AVG. DEPTH: 45.6 MAX DEPTH: 87.6  
 STATION LENGTH: (1st date) 5058 (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
234	43.2	45.6	12
330	70.8	42	24
462	87.6	48	18
396	49.2	48	22.8
306	34.8	57.6	72

<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">8</div> <p>SUBJECTIVE RATING (1-10)</p>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">8</div> <p>AESTHETIC RATING (1-10)</p>
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ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: White River RIVER MILE: 39.2  
 NEAREST TOWN: Petersburg, IN COUNTY: Knox/Pike  
 QUADRANGLE: Monroe City TWP: 1N RNG: 9W SEC: 12&13  
 LATITUDE: Upstream 4264324 N LONGITUDE: Upstream 16 468424 E  
 LATITUDE: Middle 4263503 N LONGITUDE: Middle 16 468507 E  
 LATITUDE: Downstream 4263020 N LONGITUDE: Downstream 16 468280 E  
 U.S.G.S. GAGING STATION LOCATION: Petersburg AVG. DISCHARGE (cfs): 2200  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Yes IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Launched at DFW SR 61 public access site and motored 6.5 miles downstream until stopped by low water. Electrofished downstream at RM 39.2, 30 minutes along each bank.

**COLLECTION SUMMARY**

DATE: 9/22/2004 GEAR: DC Boat Electrofishing EFFORT: 1 hour  
 CREW: Stefanavage, Hansen, Ferguson  
 OTHER GEAR/EFFORT: Seine - 4, 50 ft. hauls WATER STAGE: low  
 CANOPY (%OPEN): 100% PHOTOS (Y/N): N SECCHI DISK (inches): 10"  
 AIR TEMP (F): 82.6 WATER TEMP (F): 79.2 D.O. (ppm): 15  
 CONDUCTIVITY: 686 pH: 9 ALKALINITY: 153.9  
 TDS: \_\_\_\_\_  
 STREAM MEASUREMENTS AVG. WIDTH: 444 AVG. DEPTH: 54 MAX DEPTH: 118.8  
 STATION LENGTH: (1st date) 4740 (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
546	61.2	69.6	48
324	76.8	64.8	12
297	118.8	85.2	18
417	81.6	90	18
636	27.6	24	18

<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">7</div> <p>SUBJECTIVE RATING (1-10)</p>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">7</div> <p>AESTHETIC RATING (1-10)</p>
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ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: White River RIVER MILE: 45.7  
 NEAREST TOWN: Petersburg COUNTY: Pike/Knox  
 QUADRANGLE: Monroe City TWP: 1N RNG: 8W SEC: 15  
 LATITUDE: Upstream 4262573 N LONGITUDE: Upstream 16 474840 E  
 LATITUDE: Middle 4262589 N LONGITUDE: Middle 16 474560 E  
 LATITUDE: Downstream 4262429 N LONGITUDE: Downstream 16 474327 E  
 U.S.G.S. GAUGING STATION LOCATION: Petersburg AVG. DISCHARGE (cfs): 2150  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Yes IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Launched at DFW boat ramp at SR 61 bridge.  
Electrofished from bridge downstream to Pride's Creek, 30 minutes along each bank.

**COLLECTION SUMMARY**

DATE: 9/23/2004 GEAR: DC Boat Electrofishing EFFORT: 1 hour  
 CREW: Stefanavage, Hansen, Ferguson  
 OTHER GEAR/EFFORT: Seine - 4, 50 ft. hauls WATER STAGE: low  
 CANOPY (%OPEN): 100% PHOTOS (Y/N): N SECCHI DISK (inches): 13"  
 AIR TEMP (F): 67.5 WATER TEMP (F): 80.6 D.O. (ppm): 8  
 CONDUCTIVITY: 702 pH: 9 ALKALINITY: 153.9  
 TDS: \_\_\_\_\_  
 STREAM MEASUREMENTS AVG. WIDTH: 481.8 AVG. DEPTH: 64.8 MAX DEPTH: 140.4  
 STATION LENGTH: (1st date) 1794 (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
486	140.4	44.4	24
399	91.2	72	66
450	97.2	92.4	67.2
522	57.6	54	56.4
552	43.2	27.6	38.4

<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">7</div> <p>SUBJECTIVE RATING (1-10)</p>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">7</div> <p>AESTHETIC RATING (1-10)</p>
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ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: West Fork White River RIVER MILE: 57.5  
 NEAREST TOWN: Washington COUNTY: Daviess/Knox  
 QUADRANGLE: Sandy Hook TWP: 3N, 4N RNG: 7W, 8W SEC: 7, 18  
 LATITUDE: Upstream 38.61747° N LONGITUDE: Upstream -87.23979° W  
 LATITUDE: Downstream 38.60852° N LONGITUDE: Downstream -87.24619° W  
 U.S.G.S. GAGING STATION LOCATION: Newberry AVG. DISCHARGE (cfs): 3,400  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Yes IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Started at a set of house foundation poles on east bank.  
Launched at Washington ramp

**COLLECTION SUMMARY**

DATE: 9/21/2004 GEAR: DC EF Boat EFFORT: 1 HR  
 CREW: Dan Carnahan, Jason Doll, Brant Fisher  
 OTHER GEAR/EFFORT: 3 Seine hauls WATER STAGE: 2.45 ft  
 CANOPY (%OPEN): 100 PHOTOS (Y/N): No SECCHI DISK (inches): 10.0  
 AIR TEMP (F): 59.9 WATER TEMP (F): 68.2 D.O. (ppm): 11.6  
 CONDUCTIVITY: 827 µs pH: 7.72 ALKALINITY: 205.2 ppm  
 TDS: \_\_\_\_\_  
 STREAM MEASUREMENTS AVG. WIDTH: 318.6 ft AVG. DEPTH: 36.4 in MAX DEPTH: 81.6 in  
 STATION LENGTH: (1st date) 5,050 ft (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
279.0	12.0	24.0	36.0
330.0	25.2	51.6	50.4
300.0	12.0	36.0	81.6
387.0	12.0	27.6	81.6
297.0	33.6	39.6	22.8

<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">4</div> <p>SUBJECTIVE RATING (1-10)</p>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">4</div> <p>AESTHETIC RATING (1-10)</p>
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ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: West Fork White River RIVER MILE: 61.52  
 NEAREST TOWN: Washington COUNTY: Daviess, Knox  
 QUADRANGLE: Washington TWP: 3N RNG: 8W, 7W SEC: 62, 295  
 LATITUDE: Upstream 38.65435° N LONGITUDE: Upstream -87.24036° W  
 LATITUDE: Downstream 38.64448° N LONGITUDE: Downstream -87.23838° W  
 U.S.G.S. GAGING STATION LOCATION: Newberry AVG. DISCHARGE (cfs): 3,400  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Yes IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Launched at Washington ramp. Station ended just downstream of SR 50 Bridge.

**COLLECTION SUMMARY**

DATE: 9/21/2004 GEAR: DC EF Boat EFFORT: 1 HR  
 CREW: Dan Carnahan, Jason Doll, Brant Fisher  
 OTHER GEAR/EFFORT: 3 Seine hauls WATER STAGE: 2.45 ft  
 CANOPY (%OPEN): 100 PHOTOS (Y/N): No SECCHI DISK (inches): 10.0  
 AIR TEMP (F): 59.9 WATER TEMP (F): 68.2 D.O. (ppm): 11.6  
 CONDUCTIVITY: 803 µs pH: 7.7 ALKALINITY: 205.2 ppm  
 TDS: \_\_\_\_\_  
 STREAM MEASUREMENTS AVG. WIDTH: 301.0 ft AVG. DEPTH: 49.2 in MAX DEPTH: 111.6 in  
 STATION LENGTH: (1st date) 3,804 ft (2nd date) \_\_\_\_\_

WIDTH (ft)		DEPTH (in)	
228.0	60.0	76.8	82.8
306.0	60.0	48.0	33.6
321.0	33.6	45.6	30.0
336.0	25.2	42.0	12.0
303.0	111.6	123.6	6.0
312.0	34.8	31.2	28.8

<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">4</div> <p>SUBJECTIVE RATING (1-10)</p>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">4</div> <p>AESTHETIC RATING (1-10)</p>
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ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: West Fork White River RIVER MILE: 73.06  
 NEAREST TOWN: Bicknell COUNTY: Daviess, Knox  
 QUADRANGLE: Wheatland TWP: 3N, 4N RNG: 9W SEC: 1, 36  
 LATITUDE: Upstream 38.75030° N LONGITUDE: Upstream -87.24031° W  
 LATITUDE: Downstream 38.74837° N LONGITUDE: Downstream -87.24663° W  
 U.S.G.S. GAUGING STATION LOCATION: Newberry AVG. DISCHARGE (cfs): 3,400  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Yes IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Launched at Carnahan ramp, went downstream.

**COLLECTION SUMMARY**

DATE: 9/22/2004 GEAR: DC EF Boat EFFORT: 1 HR  
 CREW: Dan Carnahan, Jason Doll, Brant Fisher  
 OTHER GEAR/EFFORT: 3 Seine hauls WATER STAGE: 2.45 ft  
 CANOPY (%OPEN): 100 PHOTOS (Y/N): No SECCHI DISK (inches): 11.0  
 AIR TEMP (F): 64.9 WATER TEMP ( F): 69.4 D.O. (ppm): 11.4  
 CONDUCTIVITY: 874 µs pH: 7.7 ALKALINITY: 239.4 ppm  
 TDS: \_\_\_\_\_  
 STREAM MEASUREMENTS AVG. WIDTH: 217.5 ft AVG. DEPTH: 55.3 in MAX DEPTH: 264 in  
 STATION LENGTH: (1st date) 3,511 ft (2nd date) \_\_\_\_\_

WIDTH (ft)		DEPTH (in)	
189.0	43.2	135.6	122.4
297.0	50.4	90.0	12.0
168.0	99.6	79.2	12.0
213.0	146.6	110.4	12.0
246.0	6.0	12.0	14.4
192.0	31.2	12.0	6.0

<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">8</div> <p>SUBJECTIVE RATING (1-10)</p>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">8</div> <p>AESTHETIC RATING (1-10)</p>
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ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: West Fork White River RIVER MILE: 84.5  
 NEAREST TOWN: Edwardsport COUNTY: Daviess, Knox  
 QUADRANGLE: Plainville TWP: 4N RNG: 8W, 7W SEC: 1, 6  
 LATITUDE: Upstream 38.81374° N LONGITUDE: Upstream -87.23320° W  
 LATITUDE: Downstream 38.81001° N LONGITUDE: Downstream -87.24477° W  
 U.S.G.S. GAGING STATION LOCATION: Newberry AVG. DISCHARGE (cfs): 3,400  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Yes IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Station ended under high power lines.  
Launched at Carnahan boat ramp.

**COLLECTION SUMMARY**

DATE: 9/20/2004 GEAR: DC EF Boat EFFORT: 1 HR  
 CREW: Dan Carnahan, Jason Doll, Brant Fisher  
 OTHER GEAR/EFFORT: 3 Seine hauls WATER STAGE: 2.45 ft  
 CANOPY (%OPEN): 100 PHOTOS (Y/N): No SECCHI DISK (inches): 11.0  
 AIR TEMP (F): 64.9 WATER TEMP (F): 69.4 D.O. (ppm): 11.4  
 CONDUCTIVITY: 874 µs pH: 7.7 ALKALINITY: 239.4 ppm  
 TDS: \_\_\_\_\_  
 STREAM MEASUREMENTS AVG. WIDTH: 289.0 ft AVG. DEPTH: 45.3 in MAX DEPTH: 100.8 in  
 STATION LENGTH: (1st date) 4,803 ft (2nd date) \_\_\_\_\_

WIDTH (ft)		DEPTH (in)	
330.0	87.6	57.6	6.0
261.0	100.8	67.2	24.0
306.0	36.0	40.8	18.0
213.0	6.0	49.2	88.8
285.0	18.0	36.0	70.8
339.0	64.8	38.4	6.0

<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">5</div> <p>SUBJECTIVE RATING (1-10)</p>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">5</div> <p>AESTHETIC RATING (1-10)</p>
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ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: West Fork White River RIVER MILE: 101.4  
 NEAREST TOWN: Elnora COUNTY: Daviess, Knox  
 QUADRANGLE: Lyons, Epsom, Plainville TWP: 5N RNG: 6W SEC: 18  
 LATITUDE: Upstream 38.87656° N LONGITUDE: Upstream -87.12232° W  
 LATITUDE: Downstream 38.87019° N LONGITUDE: Downstream -87.12805° W  
 U.S.G.S. GAGING STATION LOCATION: Newberry AVG. DISCHARGE (cfs): 3,400  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Station started just downstream of SR 58 Bridge and went downstream. Launched at Elnora ramp.

**COLLECTION SUMMARY**

DATE: 9/20/2004 GEAR: DC EF Boat EFFORT: 1 HR  
 CREW: Dan Carnahan, Jason Doll, Brant Fisher  
 OTHER GEAR/EFFORT: 3 Seine hauls WATER STAGE: 2.45 ft  
 CANOPY (%OPEN): 100 PHOTOS (Y/N): No SECCHI DISK (inches): 12.0  
 AIR TEMP (F): 62.8 WATER TEMP (F): 67.8 D.O. (ppm): 9.1  
 CONDUCTIVITY: 870 µs pH: 7.9 ALKALINITY: 256.5 ppm  
 TDS: \_\_\_\_\_  
 STREAM MEASUREMENTS AVG. WIDTH: 223.5 ft AVG. DEPTH: 33.7 in MAX DEPTH: 102 in  
 STATION LENGTH: (1st date) 5,870 ft (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
267.0	36.0	24.0	24.0
243.0	24.0	24.0	24.0
153.0	48.0	36.0	12.0
156.0	60.0	27.0	12.0
249.0	102.0	42.0	12.0
273.0	55.5	36.0	12.0

<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">6</div> <p>SUBJECTIVE RATING (1-10)</p>	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">6</div> <p>AESTHETIC RATING (1-10)</p>
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ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: West Fork White River RIVER MILE: 105.7

NEAREST TOWN: Elnora COUNTY: Daviess/Knox/Greene

QUADRANGLE: Scotland TWP: 6N, 5N RNG: 6W SEC: 5, 32

LATITUDE: N 38.90899 LONGITUDE: W 87.09615

LATITUDE: N 38.89955 LONGITUDE: W 87.10472

U.S.G.S. GAGING STATION LOCATION: Newberry AVG. DISCHARGE (cfs): 908

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Launched at DNR ramp NW of Elnora. Sampled just upstream of rail bridge to downstream of ramp, top of sand bar.

**COLLECTION SUMMARY**

DATE: 9/20/2004 GEAR: DC Boat EFFORT: 1 hr.

CREW: Kittaka, King, Lang

OTHER GEAR/EFFORT: Seine (4) WATER STAGE: Normal

CANOPY (%OPEN): 90 PHOTOS (Y/N): Y SECCHI DISK (inches): 16"

AIR TEMP (F): 75 WATER TEMP (F): 72 D.O. (ppm): 14.5

CONDUCTIVITY: \_\_\_\_\_ pH: 9.5 ALKALINITY: 119.7

TDS: \_\_\_\_\_

STREAM MEASUREMENTS AVG. WIDTH: 288' AVG. DEPTH: 58" MAX DEPTH: 156"

STATION LENGTH: (1st date) 4271 ft. (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
216	145	110	63
324	40	25	17
342	16	24	47
261	24	27	45
306	348	105	156

<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">5</div> <p>SUBJECTIVE RATING (1-10)</p>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">3</div> <p>AESTHETIC RATING (1-10)</p>
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ADDITIONAL COMMENTS/POLLUTION IMPACTS: Launched NW of Elnora. 1550N to 400E, follow to public access site.

Nice DNR ramp. Shallow off of ramp, propped boulders.

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: West Fork White River RIVER MILE: 115.5  
 NEAREST TOWN: Plummer COUNTY: Greene  
 QUADRANGLE: Scotland TWP: 6N RNG: 5W SEC: 17  
 LATITUDE: N38.95869 LONGITUDE: W86.99326  
 LATITUDE: N38.95195 LONGITUDE: W86.99583  
 U.S.G.S. GAUGING STATION LOCATION: Newberry AVG. DISCHARGE (cfs): 908  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Started at Nedich Ditch and ended above Doans Creek.

**COLLECTION SUMMARY**

DATE: 9/23/2004 GEAR: DC Boat EFFORT: 1 hr.  
 CREW: Kittaka, King, Lang  
 OTHER GEAR/EFFORT: Seine (4) WATER STAGE: Normal  
 CANOPY (%OPEN): \_\_\_\_\_ PHOTOS (Y/N): Y SECCHI DISK (inches): 18"  
 AIR TEMP (F): 82 WATER TEMP (F): 74 D.O. (ppm): 17  
 CONDUCTIVITY: 1.01 pH: 9.2 ALKALINITY: 136.8  
 TDS: 0.5  
 STREAM MEASUREMENTS AVG. WIDTH: 320.4' AVG. DEPTH: 42.5" MAX DEPTH: 62"  
 STATION LENGTH: (1st date) 3084' (2nd date) \_\_\_\_\_

WIDTH (ft)		DEPTH (in)	
324	141	54	38
315	150	41	45
318	96	44	62
312	165	36	33
333	75	40	36

<div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">5</div> <p align="center">SUBJECTIVE RATING (1-10)</p>	<div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">4</div> <p align="center">AESTHETIC RATING (1-10)</p>
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ADDITIONAL COMMENTS/POLLUTION IMPACTS: Launched at private property under covered bridge over Plummer Creek.

Permission from Jerry Lester, 812-384-8304.

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: West Fork White River RIVER MILE: 125.0  
 NEAREST TOWN: Bloomfield COUNTY: Greene  
 QUADRANGLE: Bloomfield TWP: 7N RNG: 5W SEC: 21, 28  
 LATITUDE: N39.0193 LONGITUDE: W86.97225  
 LATITUDE: N39.03051 LONGITUDE: W86.96651  
 U.S.G.S. GUAING STATION LOCATION: \_\_\_\_\_ AVG. DISCHARGE (cfs): 908  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? \_\_\_\_\_


DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Started above old bridge posts, then downstream past the island.

**COLLECTION SUMMARY**

DATE: 9/21/2004 GEAR: DC Boat EFFORT: 1 hr.  
 CREW: Kittaka, King, Lang  
 OTHER GEAR/EFFORT: Seine (4) WATER STAGE: Normal  
 CANOPY (%OPEN): 90 PHOTOS (Y/N): \_\_\_\_\_ SECCHI DISK (inches): 12"  
 AIR TEMP (F): 71 WATER TEMP (F): 70 D.O. (ppm): 10  
 CONDUCTIVITY: 1.01 pH: 9.5 ALKALINITY: \_\_\_\_\_  
 TDS: 51  
 STREAM MEASUREMENTS AVG. WIDTH: 275.4 ft. AVG. DEPTH: 55.3" MAX DEPTH: 120"  
 STATION LENGTH: (1st date) 4,351 ft. (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
195	111	92	94
255	108	31	71
321	300	79	24
333	312	30	0
273	87	26	76

  
 SUBJECTIVE  
 RATING  
 (1-10)

  
 AESTHETIC  
 RATING  
 (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: Launched on NW side of river off HWY 231 from River Road. Private ramp at Lattas Creek. Permission from Dave Hill, 384-8830.

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: West Fork White River RIVER MILE: 134.7

NEAREST TOWN: Worthington COUNTY: Greene

QUADRANGLE: Bloomfield TWP: 8N RNG: 5W SEC: 21

LATITUDE: N39.11676 LONGITUDE: W86.96244

LATITUDE: N39.11034 LONGITUDE: W86.96353

U.S.G.S. GAUGING STATION LOCATION: \_\_\_\_\_ AVG. DISCHARGE (cfs): 908

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Began sampling just above confluence with Eel River,  
downstream to HWY 157 bridge.

**COLLECTION SUMMARY**

DATE: 9/21/2004 GEAR: DC Boat EFFORT: 1 hr.

CREW: Kittaka, King, Lang

OTHER GEAR/EFFORT: Seine (4) WATER STAGE: Normal

CANOPY (%OPEN): \_\_\_\_\_ PHOTOS (Y/N): \_\_\_\_\_ SECCHI DISK (inches): 16"

AIR TEMP (F): 80 WATER TEMP (F): 72 D.O. (ppm): 16

CONDUCTIVITY: \_\_\_\_\_ pH: 10 ALKALINITY: \_\_\_\_\_

TDS: \_\_\_\_\_

STREAM MEASUREMENTS AVG. WIDTH: 232' AVG. DEPTH: 63.5" MAX DEPTH: 128"

STATION LENGTH: (1st date) 2556' (2nd date) \_\_\_\_\_

WIDTH (ft)		DEPTH (in)	
219	231	85	45
324	147	29	34
222	87	63	117
169	63	70	114
179	135	35	45
159	384	133	44

  
SUBJECTIVE  
RATING  
(1-10)

  
AESTHETIC  
RATING  
(1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: Launched at DNR ramp on NE side of HWY 157. In good condition.

Very shallow.

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: West Fork White River RIVER MILE: 145.1

NEAREST TOWN: Farmers COUNTY: Owen

QUADRANGLE: Freedom TWP: 9N RNG: 4W SEC: 33

LATITUDE: N39.18048 LONGITUDE: W86.85218

LATITUDE: N39.17346 LONGITUDE: W86.88833

U.S.G.S. GAUGING STATION LOCATION: \_\_\_\_\_ AVG. DISCHARGE (cfs): 837

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Launched at HWY 358 ramp. Started sampling at the mouth of Raccoon Creek.

**COLLECTION SUMMARY**

DATE: 9/22/2004 GEAR: DC Boat EFFORT: 1 hr.

CREW: Kittaka, King, Lang

OTHER GEAR/EFFORT: Seine (4) WATER STAGE: Normal

CANOPY (%OPEN): \_\_\_\_\_ PHOTOS (Y/N): \_\_\_\_\_ SECCHI DISK (inches): 13"

AIR TEMP (F): 80 WATER TEMP (F): 72 D.O. (ppm): 11

CONDUCTIVITY: 1.16 pH: 9.0 ALKALINITY: 171

TDS: 0.56

STREAM MEASUREMENTS AVG. WIDTH: 220.2' AVG. DEPTH: 45.1" MAX DEPTH: 145"+

STATION LENGTH: (1st date) 3010' (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
222	48	28	29
210	57	38	57
198	60	55	57
222	165	34	17
177	81	145+	80

<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">7</div> <p>SUBJECTIVE RATING (1-10)</p>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">7</div> <p>AESTHETIC RATING (1-10)</p>
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ADDITIONAL COMMENTS/POLLUTION IMPACTS: Launched at Farmers Ferry. Old Ferry crossing with concrete slab to launch... At end of county Rd 990 off HWY 231. Needs cleaned up-nice site for DNR ramp.

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: West Fork White River RIVER MILE: 156.36  
 NEAREST TOWN: Pottersville, Indiana COUNTY: Owen  
 QUADRANGLE: Freedom, IN 1956. Photorevised 1980 TWP: 9N RNG: 4W SEC: 1, 12  
 LATITUDE:\* 39.24711° Map Datum = NAD83 LONGITUDE: 86.79943° Map Datum = NAD83  
 LATITUDE:\*\* 39.23765° Map Datum = NAD83 LONGITUDE: 86.80122° Map Datum = NAD83  
 U.S.G.S. GAUGING STATION LOCATION: RM 162.21 at Spencer, Indiana AVG. DISCHARGE (cfs): \_\_\_\_\_  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Launched from private boat ramp on left bank in section 12. Sample site started at mouth of intermittent stream on left bank in section 1 approximately 3,400 feet upstream of boat ramp. Left and right banks were sampled in downstream direction.

**COLLECTION SUMMARY**

DATE: 9/21/2004 GEAR: 16-foot DC shocker boat EFFORT: 3,600 seconds  
 CREW: L. Lehman, C. Kowalik, D. Ort  
 OTHER GEAR/EFFORT: 4 hauls with 6' X 50' seine (1/8" Delta mesh) WATER STAGE: \_\_\_\_\_  
 CANOPY (%OPEN): 95 PHOTOS (Y/N): Y SECCHI DISK (inches): 21  
 AIR TEMP (F): 75 WATER TEMP ( F): 68 D.O. (ppm): 12  
 CONDUCTIVITY: 700 micromhos/cm pH: 8.3 ALKALINITY: 274 to 291 ppm  
 TDS: \_\_\_\_\_ (conductivity) (0.84 correlation factor) = 588 ppm  
 STREAM MEASUREMENTS AVG. WIDTH: 190 feet AVG. DEPTH: 51 inches MAX DEPTH: 10 feet  
 STATION LENGTH: (1st date) approximately 3,850 feet (2nd date) NA

WIDTH (ft)	DEPTH (in)		
189	72	50	24
201	53	73	48
144	22	41	79
210	79	48	24
207	37	49	72


  
 SUBJECTIVE      AESTHETIC  
 RATING            RATING  
 (1-10)            (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \*Top of station (approximately RM 156.36). \*\*Bottom of station.  
Latitude and longitude near center of station at river mile 156.00 = 39.24230° and 86.79882°.  
Three fish lice were collected and preserved.

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**

STREAM: West Fork White River RIVER MILE: 164.53  
 NEAREST TOWN: Spencer, Indiana. Romona, Indiana COUNTY: Owen  
 QUADRANGLE: Gosport, IN 1998 TWP: 10N RNG: 3W SEC: 15,21, 22  
 LATITUDE:\* 39.29729° Map Datum = NAD83 LONGITUDE: 86.73784° Map Datum = NAD83  
 LATITUDE:\*\* 39.29292° Map Datum = NAD83 LONGITUDE: 86.74622° Map Datum = NAD83  
 U.S.G.S. GAUGING STATION LOCATION: RM 162.21 at Spencer, Indiana AVG. DISCHARGE (cfs): \_\_\_\_\_  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? \_\_\_\_\_


DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Launched from IDNR ramp at Spencer. Sample site  
extended approximately 3,060 feet downstream (determined with GPS unit) from mouth of McCormicks Creek at  
River Mile 164.53. Left and right banks were sampled in downstream direction.

**COLLECTION SUMMARY**

DATE: 9/20/2004 GEAR: 16-foot DC shocker boat EFFORT: 3,600 seconds  
 CREW: L. Lehman, C. Kowalik, D. Ort  
 OTHER GEAR/EFFORT: 4 hauls with 6' X 50' seine (1/8" Delta mesh) WATER STAGE: \_\_\_\_\_  
 CANOPY (%OPEN): 90 PHOTOS (Y/N): Y SECCHI DISK (inches): 20  
 AIR TEMP (F): 70 WATER TEMP (F): 68 D.O. (ppm): 8 to 9  
 CONDUCTIVITY: 1,000 micromhos/cm pH: 8.3 ALKALINITY: 222 to 239 ppm  
 TDS: \_\_\_\_\_ (conductivity) (0.84 correlation factor) = 840 ppm  
 STREAM MEASUREMENTS AVG. WIDTH: 187 feet AVG. DEPTH: 61 inches MAX DEPTH: >11 feet  
 STATION LENGTH: (1st date) approximately 3,060 feet (2nd date) NA

WIDTH (ft)	DEPTH (in)		
144	50	42	34
237	58	53	61
225	58	66	72
195	42	30	17
132	>132	120	74

  
 SUBJECTIVE  
 RATING  
 (1-10)

  
 AESTHETIC  
 RATING  
 (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \*Top of station at mouth of McCormicks Creek (RM 164.53). \*\*Bottom of station. Latitude  
and longitude near center of station at RM 164.24 = 39.29474° and 86.74154°. Remnants of old railroad bridge are present in river 460  
feet upstream of mouth of McCormicks Creek. This shoreline angling site is accessible from Trail 7 in McCormick's Creek State Park.

**INDIANA DIVISION OF FISH AND WILDLIFE  
STREAM HABITAT EVALUATION FORM**



STREAM: West Fork White River RIVER MILE: 194.09  
 NEAREST TOWN: Martinsville, Indiana COUNTY: Morgan  
 QUADRANGLE: Martinsville, IN 1998 TWP: 12N RNG: 1E SEC: 20, 29  
 LATITUDE:\* 39.46133° Map Datum = NAD83 LONGITUDE: 86.44152° Map Datum = NAD83  
 LATITUDE:\*\* 39.45371° Map Datum = NAD83 LONGITUDE: 86.43811° Map Datum = NAD83  
 U.S.G.S. GAUGING STATION LOCATION: RM 198.92 near Centerton, Indiana AVG. DISCHARGE (cfs): \_\_\_\_\_  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Launched from private boat ramp at bait shop on right bank. Station started at box culvert on right bank approximately 1,215 feet above boat ramp. Station length of 3,060 feet determined with GPS unit. Left and right banks were sampled in downstream direction.

**COLLECTION SUMMARY**

DATE: 9/28/2004 GEAR: 16-foot DC shocker boat EFFORT: 3,600 seconds  
 CREW: L. Lehman, C. Kowalik, A. Richards  
 OTHER GEAR/EFFORT: 4 hauls with 6' X 50' seine (1/8" Delta mesh) WATER STAGE: \_\_\_\_\_  
 CANOPY (%OPEN): 90 PHOTOS (Y/N): Y SECCHI DISK (inches): 21  
 AIR TEMP (F): 64 WATER TEMP (F): 70 D.O. (ppm): 13-14  
 CONDUCTIVITY: 1,000 micromhos/cm pH: 8.3 ALKALINITY: 239 to 256 ppm  
 TDS: \_\_\_\_\_ (conductivity) (0.84 correlation factor) = 840 ppm  
 STREAM MEASUREMENTS AVG. WIDTH: 234 feet AVG. DEPTH: 41 inches MAX DEPTH: 8 feet  
 STATION LENGTH: (1st date) approximately 3,060 feet (2nd date) NA

WIDTH (ft)	DEPTH (in)		
246	52	38	28
231	53	31	28
258	30	26	26
165	35	72	76
270	67	25	28


  
 SUBJECTIVE      AESTHETIC  
 RATING            RATING  
 (1-10)            (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \*Top of station (approximately RM 194.09) at box culvert under SR 67.  
\*\*Bottom of station. Latitude and longitude near center of station at RM 193.80 = 39.45736° and 86.44075°.  
Latitude and longitude at boat ramp = 39.45796° and 86.44147°.

## APPENDIX F

QHEI FORMS FOR EACH SITE, WFWR 2004

STREAM: White River RIVER MILE 3.6 DATE: 9/16/2004 QHEI SCORE 46

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 4

TYPE		POOL	RIFFLE	TYPE		POOL	RIFFLE	SUBSTRATE ORIGIN (all)		SILT COVER (one)					
<input type="checkbox"/>	BLDER/SLAB(10)			<input type="checkbox"/>	GRAVEL(7)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)	<input checked="" type="checkbox"/>	SILT-HEAVY(-2)	<input type="checkbox"/>	SILT-MOD(-1)
<input type="checkbox"/>	BOULDER(9)			<input type="checkbox"/>	SAND(6)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)	<input type="checkbox"/>	SILT-NORM(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	COBBLE(8)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	BEDROCK(5)			<input type="checkbox"/>	SANDSTONE(0)	<u>Extent of Embeddedness (check one)</u>					
<input type="checkbox"/>	HARDPAN(4)			<input type="checkbox"/>	DETRITUS(3)	<input checked="" type="checkbox"/>		<input type="checkbox"/>	SHALE(-1)	<input type="checkbox"/>		<input type="checkbox"/>	EXTENSIVE(-2)	<input type="checkbox"/>	MODERATE(-1)
<input checked="" type="checkbox"/>	MUCK/SILT(2)	<input checked="" type="checkbox"/>		<input type="checkbox"/>	ARTIFIC(0)			<input type="checkbox"/>	COAL FINES(-2)	<input checked="" type="checkbox"/>		<input type="checkbox"/>	LOW(0)	<input type="checkbox"/>	NONE(1)

TOTAL NUMBER OF SUBSTRATE TYPES: ☒ >4(2) ☐ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20)

COVER SCORE 6

TYPE(Check all that apply)

<input type="checkbox"/> UNDERCUT BANKS(1)	<input checked="" type="checkbox"/> DEEP POOLS(2)	<input type="checkbox"/> OXBOWS(1)	<input type="checkbox"/> EXTENSIVE >75%(11)
<input type="checkbox"/> OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/> ROOTWADS(1)	<input type="checkbox"/> AQUATIC MACROPHYTES(1)	<input type="checkbox"/> MODERATE 25-75%(7)
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/> BOULDERS(1)	<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS(1)	<input type="checkbox"/> SPARSE 5-25%(3)
			<input checked="" type="checkbox"/> NEARLY ABSENT <5%(1)

AMOUNT (Check only one or Check 2 and AVERAGE)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

11

<u>SINUOSITY</u>	<u>DEVELOPMENT</u>	<u>CHANNELIZATION</u>	<u>STABILITY</u>	<u>MODIFICATION/OTHER</u>
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input checked="" type="checkbox"/> HIGH(3)	<input type="checkbox"/> SNAGGING
<input type="checkbox"/> MODERATE(3)	<input type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input type="checkbox"/> MODERATE(2)	<input type="checkbox"/> RELOCATION
<input type="checkbox"/> LOW(2)	<input type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input type="checkbox"/> LOW(1)	<input type="checkbox"/> CANOPY REMOVAL
<input checked="" type="checkbox"/> NONE(1)	<input checked="" type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)		<input type="checkbox"/> DREDGING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATION

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 5

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

EROSION/RUNOFF-FLOODPLAIN QUALITY

BANK EROSION

<u>L</u> <u>R (per bank)</u>		<u>L</u> <u>R (most predominant per bank)</u>		<u>L</u> <u>R (per bank)</u>		<u>L</u> <u>R (per bank)</u>	
<input type="checkbox"/>	WIDE>150ft.(4)	<input type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)	<input checked="" type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	MODERATE 30-150 ft.(3)	<input checked="" type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)	<input type="checkbox"/>	MODERATE(2)
<input checked="" type="checkbox"/>	NARROW 15-30 ft.(2)	<input type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)	<input type="checkbox"/>	HEAVY OR SEVERE(1)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)	<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)		
<input type="checkbox"/>	NONE(0)						

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12)

**NO POOL = 0**

POOL SCORE 9

<u>MAX. DEPTH (Check 1)</u>	<u>MORPHOLOGY (Check 1)</u>	<u>POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)</u>	
<input checked="" type="checkbox"/> >4 ft.(6)	<input type="checkbox"/> POOL WIDTH>RIFFLE WIDTH(2)	<input type="checkbox"/> TORRENTIAL(-1)	<input checked="" type="checkbox"/> EDDIES(1)
<input type="checkbox"/> 2.4-4 ft.(4)	<input type="checkbox"/> POOL WIDTH=RIFFLE WIDTH(1)	<input type="checkbox"/> FAST(1)	<input type="checkbox"/> INTERSTITIAL(-1)
<input type="checkbox"/> 1.2-2.4 ft.(2)	<input checked="" type="checkbox"/> POOL WIDTH<RIFFLE WIDTH(0)	<input checked="" type="checkbox"/> MODERATE(1)	<input type="checkbox"/> INTERMITTENT(-2)
<input type="checkbox"/> <1.2 ft.(1)		<input checked="" type="checkbox"/> SLOW(1)	
<input type="checkbox"/> <0.6 ft.(Pool=0)(0)			

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 5

<u>RIFFLE/RUN DEPTH</u>	<u>RIFFLE/RUN SUBSTRATE</u>	<u>RIFFLE/RUN EMBEDDEDNESS</u>
<input checked="" type="checkbox"/> GENERALLY >4 in. MAX.>20 in.(4)	<input type="checkbox"/> STABLE (e.g., Cobble,Boulder)(2)	<input type="checkbox"/> EXTENSIVE(-1)
<input type="checkbox"/> GENERALLY >4 in. MAX.<20 in.(3)	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)	<input type="checkbox"/> NONE(2)
<input type="checkbox"/> GENERALLY 2-4 in.(1)	<input type="checkbox"/> UNSTABLE (Gravel, Sand)(0)	<input checked="" type="checkbox"/> MODERATE(0)
<input type="checkbox"/> GENERALLY <2 in.(Riffle=0)(0)	<input type="checkbox"/> NO RIFFLE(0)	<input type="checkbox"/> NO RIFFLE(0)
		<input type="checkbox"/> LOW(1)

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 0.4 % POOL 20 % RIFFLE 5 % RUN 75 GRADIENT SCORE 6

STREAM: White River RIVER MILE 15.9 DATE: 9/20/2004 QHEI SCORE 60.5

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 12

TYPE		POOL	RIFFLE	TYPE		POOL	RIFFLE	SUBSTRATE ORIGIN (all)		SILT COVER (one)					
<input type="checkbox"/>	BLDER/SLAB(10)			<input checked="" type="checkbox"/>	GRAVEL(7)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)	<input type="checkbox"/>	SILT-HEAVY(-2)	<input type="checkbox"/>	SILT-MOD(-1)
<input type="checkbox"/>	BOULDER(9)			<input type="checkbox"/>	SAND(6)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)	<input checked="" type="checkbox"/>	SILT-NORM(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	COBBLE(8)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	BEDROCK(5)			<input type="checkbox"/>	SANDSTONE(0)	Extent of Embeddedness (check one)					
<input type="checkbox"/>	HARDPAN(4)			<input type="checkbox"/>	DETRITUS(3)	<input checked="" type="checkbox"/>		<input type="checkbox"/>	SHALE(-1)	<input type="checkbox"/>	EXTENSIVE(-2)	<input checked="" type="checkbox"/>	MODERATE(-1)		
<input checked="" type="checkbox"/>	MUCK/SILT(2)	<input checked="" type="checkbox"/>		<input type="checkbox"/>	ARTIFIC(0)			<input type="checkbox"/>	COAL FINES(-2)	<input type="checkbox"/>	LOW(0)	<input type="checkbox"/>	NONE(1)		

TOTAL NUMBER OF SUBSTRATE TYPES: ☒ >4(2) ☐ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20)

COVER SCORE 5

TYPE(Check all that apply)				AMOUNT (Check only one or Check 2 and AVERAGE)	
<input type="checkbox"/>	UNDERCUT BANKS(1)	<input checked="" type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	OXBOWS(1)
<input type="checkbox"/>	OVERHANGING VEGETATION(1)	<input type="checkbox"/>	ROOTWADS(1)	<input type="checkbox"/>	AQUATIC MACROPHYTES(1)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/>	BOULDERS(1)	<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)
				<input type="checkbox"/>	EXTENSIVE >75%(11)
				<input type="checkbox"/>	MODERATE 25-75%(7)
				<input type="checkbox"/>	SPARSE 5-25%(3)
				<input checked="" type="checkbox"/>	NEARLY ABSENT <5%(1)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

14

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER	
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input checked="" type="checkbox"/> HIGH(3)	<input type="checkbox"/>	SNAGGING
<input type="checkbox"/> MODERATE(3)	<input type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input type="checkbox"/> MODERATE(2)	<input type="checkbox"/>	RELOCATION
<input checked="" type="checkbox"/> LOW(2)	<input checked="" type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input type="checkbox"/> LOW(1)	<input type="checkbox"/>	CANOPY REMOVAL
<input type="checkbox"/> NONE(1)	<input type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)		<input type="checkbox"/>	DREDGING
				<input type="checkbox"/>	ONE SIDE CHANNEL MODIFICATION
				<input type="checkbox"/>	IMPOUND
				<input type="checkbox"/>	ISLAND
				<input type="checkbox"/>	LEVEED
				<input type="checkbox"/>	BANK SHAPING

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 8.5

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

EROSION/RUNOFF-FLOODPLAIN QUALITY

BANK EROSION

L R (per bank)		L R (most predominant per bank)		L R (per bank)		L R (per bank)	
<input checked="" type="checkbox"/>	WIDE>150ft.(4)	<input checked="" type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)	<input checked="" type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	MODERATE 30-150 ft.(3)	<input type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	<input checked="" type="checkbox"/> SHURB OR OLD FIELD(2)	<input type="checkbox"/>	MODERATE(2)
<input type="checkbox"/>	<input checked="" type="checkbox"/> NARROW 15-30 ft.(2)	<input type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)	<input type="checkbox"/>	HEAVY OR SEVERE(1)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)	<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)		
<input type="checkbox"/>	NONE(0)						

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12)

**NO POOL = 0**

POOL SCORE 10

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)	
<input checked="" type="checkbox"/> >4 ft.(6)	<input type="checkbox"/> POOL WIDTH>RIFFLE WIDTH(2)	<input type="checkbox"/> TORRENTIAL(-1)	<input checked="" type="checkbox"/> EDDIES(1)
<input type="checkbox"/> 2.4-4 ft.(4)	<input type="checkbox"/> POOL WIDTH=RIFFLE WIDTH(1)	<input checked="" type="checkbox"/> FAST(1)	<input type="checkbox"/> INTERSTITIAL(-1)
<input type="checkbox"/> 1.2-2.4 ft.(2)	<input checked="" type="checkbox"/> POOL WIDTH<RIFFLE WIDTH(0)	<input checked="" type="checkbox"/> MODERATE(1)	<input type="checkbox"/> INTERMITTENT(-2)
<input type="checkbox"/> <1.2 ft.(1)		<input checked="" type="checkbox"/> SLOW(1)	
<input type="checkbox"/> <0.6 ft.(Pool=0)(0)			

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 5

RIFFLE/RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS
<input checked="" type="checkbox"/> GENERALLY >4 in. MAX.>20 in.(4)	<input type="checkbox"/> STABLE (e.g., Cobble,Boulder)(2)	<input type="checkbox"/> EXTENSIVE(-1)
<input type="checkbox"/> GENERALLY >4 in. MAX.<20 in.(3)	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)	<input type="checkbox"/> NONE(2)
<input type="checkbox"/> GENERALLY 2-4 in.(1)	<input type="checkbox"/> UNSTABLE (Gravel, Sand)(0)	<input checked="" type="checkbox"/> MODERATE(0)
<input type="checkbox"/> GENERALLY <2 in.(Rifle=0)(0)	<input type="checkbox"/> NO RIFFLE(0)	<input type="checkbox"/> LOW(1)
		<input type="checkbox"/> NO RIFFLE(0)

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 0.4 % POOL 30 % RIFFLE 20 % RUN 50 GRADIENT SCORE 6

STREAM: White River RIVER MILE 24.3 DATE: 9/21/2004 QHEI SCORE 55

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE 10

TYPE		POOL	RIFFLE	POOL		RIFFLE		SUBSTRATE ORIGIN (all)		SILT COVER (one)					
<input type="checkbox"/>	BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)	<input type="checkbox"/>	SILT-HEAVY(-2)	<input type="checkbox"/>	SILT-MOD(-1)
<input type="checkbox"/>	BOULDER(9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)	<input checked="" type="checkbox"/>	SILT-NORM(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	COBBLE(8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SANDSTONE(0)	Extent of Embeddedness (check one)					
<input type="checkbox"/>	HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SHALE(-1)	<input type="checkbox"/>	EXTENSIVE(-2)	<input checked="" type="checkbox"/>	MODERATE(-1)		
<input checked="" type="checkbox"/>	MUCK/SILT(2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COAL FINES(-2)	<input type="checkbox"/>	LOW(0)	<input type="checkbox"/>	NONE(1)		

TOTAL NUMBER OF SUBSTRATE TYPES: ☒ >4(2) ☐ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20) COVER SCORE 5

TYPE(Check all that apply)				AMOUNT (Check only one or Check 2 and AVERAGE)			
<input type="checkbox"/>	UNDERCUT BANKS(1)	<input checked="" type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	OXBOWS(1)	<input type="checkbox"/>	EXTENSIVE >75%(11)
<input type="checkbox"/>	OVERHANGING VEGETATION(1)	<input type="checkbox"/>	ROOTWADS(1)	<input type="checkbox"/>	AQUATIC MACROPHYTES(1)	<input type="checkbox"/>	MODERATE 25-75%(7)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/>	BOULDERS(1)	<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)	<input type="checkbox"/>	SPARSE 5-25%(3)
						<input checked="" type="checkbox"/>	NEARLY ABSENT <5%(1)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) 14

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER								
<input type="checkbox"/>	HIGH(4)	<input checked="" type="checkbox"/>	NONE(6)	<input checked="" type="checkbox"/>	HIGH(3)	<input type="checkbox"/>	SNAGGING	<input type="checkbox"/>	IMPOUND			
<input type="checkbox"/>	MODERATE(3)	<input type="checkbox"/>	RECOVERED(4)	<input type="checkbox"/>	MODERATE(2)	<input type="checkbox"/>	RELOCATION	<input type="checkbox"/>	ISLAND			
<input checked="" type="checkbox"/>	LOW(2)	<input checked="" type="checkbox"/>	RECOVERING(3)	<input type="checkbox"/>	LOW(1)	<input type="checkbox"/>	CANOPY REMOVAL	<input type="checkbox"/>	LEVEED			
<input type="checkbox"/>	NONE(1)	<input type="checkbox"/>	RECENT OR NO RECOVERY(1)	<input type="checkbox"/>						DREDGING	<input type="checkbox"/>	BANK SHAPING
										<input type="checkbox"/>	ONE SIDE CHANNEL MODIFICATION	

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE 5

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

L	R (per bank)
<input type="checkbox"/>	WIDE>150ft.(4)
<input type="checkbox"/>	MODERATE 30-150 ft.(3)
<input checked="" type="checkbox"/>	NARROW 15-30 ft.(2)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)
<input type="checkbox"/>	NONE(0)

EROSION/RUNOFF-FLOODPLAIN QUALITY

L	R (most predominant per bank)	L	R (per bank)
<input type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)
<input checked="" type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)
<input type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)
<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)

BANK EROSION

L	R (per bank)
<input checked="" type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	MODERATE(2)
<input type="checkbox"/>	HEAVY OR SEVERE(1)

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE 10

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)			
<input checked="" type="checkbox"/>	>4 ft.(6)	<input type="checkbox"/>	TORRENTIAL(-1)	<input checked="" type="checkbox"/>	EDDIES(1)
<input type="checkbox"/>	2.4-4 ft.(4)	<input checked="" type="checkbox"/>	FAST(1)	<input type="checkbox"/>	INTERSTITIAL(-1)
<input type="checkbox"/>	1.2-2.4 ft.(2)	<input checked="" type="checkbox"/>	MODERATE(1)	<input type="checkbox"/>	INTERMITTENT(-2)
<input type="checkbox"/>	<1.2 ft.(1)	<input checked="" type="checkbox"/>	SLOW(1)		
<input type="checkbox"/>	<0.6 ft.(Pool=0)(0)				

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 5

RIFFLE/RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS			
<input checked="" type="checkbox"/>	GENERALLY >4 in. MAX.>20 in.(4)	<input type="checkbox"/>	EXTENSIVE(-1)	<input type="checkbox"/>	NONE(2)
<input type="checkbox"/>	GENERALLY >4 in. MAX.<20 in.(3)	<input checked="" type="checkbox"/>	MODERATE(0)	<input type="checkbox"/>	NO RIFFLE(0)
<input type="checkbox"/>	GENERALLY 2-4 in.(1)	<input type="checkbox"/>	LOW(1)		
<input type="checkbox"/>	GENERALLY <2 in.(Riffle=0)(0)				

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 0.4 % POOL 30 % RIFFLE 15 % RUN 55 GRADIENT SCORE 6

STREAM: White River RIVER MILE 39.2 DATE: 9/22/2004 QHEI SCORE 47.5

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 6

TYPE	POOL	RIFFLE	POOL	RIFFLE	SUBSTRATE ORIGIN (all)	SILT COVER (one)		
<input type="checkbox"/> BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> LIMESTONE(1)	<input type="checkbox"/> RIP/RAP(0)	<input type="checkbox"/> SILT-HEAVY(-2)	<input checked="" type="checkbox"/> SILT-MOD(-1)
<input type="checkbox"/> BOULDER(9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> SAND(6)	<input type="checkbox"/>	<input type="checkbox"/> TILLS(1)	<input type="checkbox"/> HARDPAN(0)	<input type="checkbox"/> SILT-NORM(0)	<input type="checkbox"/> SILT-FREE(1)
<input type="checkbox"/> COBBLE(8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BEDROCK(5)	<input type="checkbox"/>	<input type="checkbox"/> SANDSTONE(0)	<u>Extent of Embeddedness (check one)</u>		
<input type="checkbox"/> HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> DETRITUS(3)	<input type="checkbox"/>	<input type="checkbox"/> SHALE(-1)	<input type="checkbox"/>	<input type="checkbox"/> EXTENSIVE(-2)	<input checked="" type="checkbox"/> MODERATE(-1)
<input checked="" type="checkbox"/> MUCK/SILT(2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> ARTIFIC(0)	<input type="checkbox"/>	<input type="checkbox"/> COAL FINES(-2)	<input type="checkbox"/>	<input type="checkbox"/> LOW(0)	<input type="checkbox"/> NONE(1)

TOTAL NUMBER OF SUBSTRATE TYPES: ☐ >4(2) ☒ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20)

COVER SCORE 5

TYPE (Check all that apply)		AMOUNT (Check only one or Check 2 and AVERAGE)
<input type="checkbox"/> UNDERCUT BANKS(1)	<input checked="" type="checkbox"/> DEEP POOLS(2)	<input type="checkbox"/> EXTENSIVE >75%(11)
<input type="checkbox"/> OVERHANGING VEGETATION(1)	<input type="checkbox"/> ROOTWADS(1)	<input type="checkbox"/> MODERATE 25-75%(7)
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/> BOULDERS(1)	<input type="checkbox"/> SPARSE 5-25%(3)
	<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS(1)	<input checked="" type="checkbox"/> NEARLY ABSENT <5%(1)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

11

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER	
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input type="checkbox"/> HIGH(3)	<input type="checkbox"/> SNAGGING	<input type="checkbox"/> IMPOUND
<input type="checkbox"/> MODERATE(3)	<input type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input checked="" type="checkbox"/> MODERATE(2)	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLAND
<input checked="" type="checkbox"/> LOW(2)	<input type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input type="checkbox"/> LOW(1)	<input type="checkbox"/> CANOPY REMOVAL	<input type="checkbox"/> LEVEED
<input type="checkbox"/> NONE(1)	<input checked="" type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)		<input type="checkbox"/> DREDGING	<input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATION	

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 5.5

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/> WIDE >150 ft.(4)
<input type="checkbox"/>	<input type="checkbox"/> MODERATE 30-150 ft.(3)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> NARROW 15-30 ft.(2)
<input type="checkbox"/>	<input type="checkbox"/> VERY NARROW 3-15 ft.(1)
<input type="checkbox"/>	<input type="checkbox"/> NONE(0)

EROSION/RUNOFF-FLOODPLAIN QUALITY

L	R (most predominant per bank)	L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/> FOREST, SWAMP(3)	<input type="checkbox"/>	<input type="checkbox"/> URBAN OR INDUSTRIAL(0)
<input type="checkbox"/>	<input type="checkbox"/> OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	<input type="checkbox"/> SHURB OR OLD FIELD(2)
<input type="checkbox"/>	<input type="checkbox"/> RESID., PARK, NEW FIELD(1)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> CONSERV. TILLAGE(1)
<input type="checkbox"/>	<input type="checkbox"/> FENCED PASTURE(1)	<input type="checkbox"/>	<input type="checkbox"/> MINING/CONSTRUCTION(0)

BANK EROSION

L	R (per bank)
<input type="checkbox"/>	<input checked="" type="checkbox"/> NONE OR LITTLE(3)
<input checked="" type="checkbox"/>	<input type="checkbox"/> MODERATE(2)
<input type="checkbox"/>	<input type="checkbox"/> HEAVY OR SEVERE(1)

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12)

**NO POOL = 0**

POOL SCORE 12

MAX. DEPTH (Check 1)

<input checked="" type="checkbox"/>	>4 ft.(6)
<input type="checkbox"/>	2-4 ft.(4)
<input type="checkbox"/>	1.2-2.4 ft.(2)
<input type="checkbox"/>	<1.2 ft.(1)
<input type="checkbox"/>	<0.6 ft.(Pool=0)(0)

MORPHOLOGY (Check 1)

<input checked="" type="checkbox"/>	POOL WIDTH>RIFFLE WIDTH(2)
<input type="checkbox"/>	POOL WIDTH=RIFFLE WIDTH(1)
<input type="checkbox"/>	POOL WIDTH<RIFFLE WIDTH(0)

POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)

<input type="checkbox"/>	TORRENTIAL(-1)	<input checked="" type="checkbox"/>	EDDIES(1)
<input checked="" type="checkbox"/>	FAST(1)	<input type="checkbox"/>	INTERSTITIAL(-1)
<input checked="" type="checkbox"/>	MODERATE(1)	<input type="checkbox"/>	INTERMITTENT(-2)
<input checked="" type="checkbox"/>	SLOW(1)		

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 0

RIFFLE/RUN DEPTH

<input checked="" type="checkbox"/>	GENERALLY >4 in. MAX.>20 in.(4)
<input type="checkbox"/>	GENERALLY >4 in. MAX.<20 in.(3)
<input type="checkbox"/>	GENERALLY 2-4 in.(1)
<input type="checkbox"/>	GENERALLY <2 in.(Riffle=0)(0)

RIFFLE/RUN SUBSTRATE

<input type="checkbox"/>	STABLE (e.g., Cobble,Boulder)(2)
<input checked="" type="checkbox"/>	MOD. STABLE (e.g., Pea Gravel)(1)
<input type="checkbox"/>	UNSTABLE (Gravel, Sand)(0)
<input type="checkbox"/>	NO RIFFLE(0)

RIFFLE/RUN EMBEDDEDNESS

<input type="checkbox"/>	EXTENSIVE(-1)	<input type="checkbox"/>	NONE(2)
<input checked="" type="checkbox"/>	MODERATE(0)	<input type="checkbox"/>	NO RIFFLE(0)
<input type="checkbox"/>	LOW(1)		

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 0.8 % POOL 1 % RIFFLE 0 % RUN 99 GRADIENT SCORE 8

STREAM: White River RIVER MILE 45.7 DATE: 9/23/2004 QHEI SCORE 44

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 4

TYPE		POOL	RIFFLE	POOL		RIFFLE	SUBSTRATE ORIGIN (all)		SILT COVER (one)					
<input type="checkbox"/>	BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)	<input type="checkbox"/>	SILT-HEAVY(-2)	<input checked="" type="checkbox"/>	SILT-MOD(-1)
<input type="checkbox"/>	BOULDER(9)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)	<input type="checkbox"/>	SILT-NORM(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	COBBLE(8)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SANDSTONE(0)	Extent of Embeddedness (check one)					
<input type="checkbox"/>	HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SHALE(-1)	<input type="checkbox"/>	EXTENSIVE(-2)	<input checked="" type="checkbox"/>	MODERATE(-1)		
<input checked="" type="checkbox"/>	MUCK/SILT(2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COAL FINES(-2)	<input type="checkbox"/>	LOW(0)	<input type="checkbox"/>	NONE(1)		

TOTAL NUMBER OF SUBSTRATE TYPES: ☒ >4(2) ☐ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS:

2) INSTREAM COVER: (20)

COVER SCORE 5

TYPE (Check all that apply)		AMOUNT (Check only one or Check 2 and AVERAGE)	
<input type="checkbox"/> UNDERCUT BANKS(1)	<input checked="" type="checkbox"/> DEEP POOLS(2)	<input type="checkbox"/> OXBOWS(1)	<input type="checkbox"/> EXTENSIVE >75%(11)
<input type="checkbox"/> OVERHANGING VEGETATION(1)	<input type="checkbox"/> ROOTWADS(1)	<input type="checkbox"/> AQUATIC MACROPHYTES(1)	<input type="checkbox"/> MODERATE 25-75%(7)
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/> BOULDERS(1)	<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS(1)	<input type="checkbox"/> SPARSE 5-25%(3)
			<input checked="" type="checkbox"/> NEARLY ABSENT <5%(1)

COMMENTS:

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

11

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER	
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input checked="" type="checkbox"/> HIGH(3)	<input type="checkbox"/> SNAGGING	<input type="checkbox"/> IMPOUND
<input type="checkbox"/> MODERATE(3)	<input type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input type="checkbox"/> MODERATE(2)	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLAND
<input type="checkbox"/> LOW(2)	<input type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input type="checkbox"/> LOW(1)	<input type="checkbox"/> CANOPY REMOVAL	<input type="checkbox"/> LEVEED
<input checked="" type="checkbox"/> NONE(1)	<input checked="" type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)		<input type="checkbox"/> DREDGING	<input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATION	

COMMENTS:

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 6

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/> WIDE >150ft.(4)
<input type="checkbox"/>	<input type="checkbox"/> MODERATE 30-150 ft.(3)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> NARROW 15-30 ft.(2)
<input type="checkbox"/>	<input type="checkbox"/> VERY NARROW 3-15 ft.(1)
<input type="checkbox"/>	<input type="checkbox"/> NONE(0)

EROSION/RUNOFF-FLOODPLAIN QUALITY

L	R (most predominant per bank)	L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/> FOREST, SWAMP(3)	<input type="checkbox"/>	<input type="checkbox"/> URBAN OR INDUSTRIAL(0)
<input type="checkbox"/>	<input type="checkbox"/> OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	<input type="checkbox"/> SHURB OR OLD FIELD(2)
<input checked="" type="checkbox"/>	<input type="checkbox"/> RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	<input checked="" type="checkbox"/> CONSERV. TILLAGE(1)
<input type="checkbox"/>	<input type="checkbox"/> FENCED PASTURE(1)	<input type="checkbox"/>	<input type="checkbox"/> MINING/CONSTRUCTION(0)

BANK EROSION

L	R (per bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> NONE OR LITTLE(3)
<input type="checkbox"/>	<input type="checkbox"/> MODERATE(2)
<input type="checkbox"/>	<input type="checkbox"/> HEAVY OR SEVERE(1)

COMMENTS:

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12)

NO POOL = 0

POOL SCORE 10

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)	
<input checked="" type="checkbox"/> >4 ft.(6)	<input type="checkbox"/> POOL WIDTH>RIFFLE WIDTH(2)	<input type="checkbox"/> TORRENTIAL(-1)	<input checked="" type="checkbox"/> EDDIES(1)
<input type="checkbox"/> 2.4-4 ft.(4)	<input type="checkbox"/> POOL WIDTH=RIFFLE WIDTH(1)	<input checked="" type="checkbox"/> FAST(1)	<input type="checkbox"/> INTERSTITIAL(-1)
<input type="checkbox"/> 1.2-2.4 ft.(2)	<input checked="" type="checkbox"/> POOL WIDTH<RIFFLE WIDTH(0)	<input checked="" type="checkbox"/> MODERATE(1)	<input type="checkbox"/> INTERMITTENT(-2)
<input type="checkbox"/> <1.2 ft.(1)		<input checked="" type="checkbox"/> SLOW(1)	
<input type="checkbox"/> <0.6 ft.(Pool=0)(0)			

COMMENTS:

RIFFLE SCORE 0

RIFFLE/RUN DEPTH

<input type="checkbox"/> GENERALLY >4 in. MAX.>20 in.(4)
<input type="checkbox"/> GENERALLY >4 in. MAX.<20 in.(3)
<input type="checkbox"/> GENERALLY 2-4 in.(1)
<input type="checkbox"/> GENERALLY <2 in.(Riffle=0)(0)

RIFFLE/RUN SUBSTRATE

<input type="checkbox"/> STABLE (e.g., Cobble,Boulder)(2)
<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)
<input type="checkbox"/> UNSTABLE (Gravel, Sand)(0)
<input checked="" type="checkbox"/> NO RIFFLE(0)

RIFFLE/RUN EMBEDDEDNESS

<input type="checkbox"/> EXTENSIVE(-1)	<input type="checkbox"/> NONE(2)
<input type="checkbox"/> MODERATE(0)	<input checked="" type="checkbox"/> NO RIFFLE(0)
<input type="checkbox"/> LOW(1)	

COMMENTS:

6) GRADIENT (FEET/MILE)(10) 0.9 % POOL 9 % RIFFLE 1 % RUN 90 GRADIENT SCORE 8

STREAM: WFWR RIVER MILE 57.5 DATE: 9/21/2004 QHEI SCORE 46

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 10

TYPE		POOL		RIFFL		SUBSTRATE ORIGIN (all)		SILT COVER (one)							
<input type="checkbox"/>	BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)	<input type="checkbox"/>	SILT-HEAVY(-2)	<input type="checkbox"/>	SILT-MOD(-1)		
<input type="checkbox"/>	BOULDER(9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SAND(6)	<input type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)	<input checked="" type="checkbox"/>	SILT-NORM(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	COBBLE(8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BEDROCK(5)	<input type="checkbox"/>	SANDSTONE(0)	Extent of Embeddedness (check one)					
<input type="checkbox"/>	HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DETRITUS(3)	<input type="checkbox"/>	SHALE(-1)					<input type="checkbox"/>	EXTENSIVE(-2)
<input checked="" type="checkbox"/>	MUCK/SILT(2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ARTIFIC(0)	<input type="checkbox"/>	COAL FINES(-2)	<input type="checkbox"/>	LOW(0)	<input type="checkbox"/>	NONE(1)		

TOTAL NUMBER OF SUBSTRATE TYPES: ☐ >4(2) ☒ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20)

COVER SCORE 10

TYPE(Check all that apply)				AMOUNT (Check only one or Check 2 and AVERAGE)			
<input type="checkbox"/>	UNDERCUT BANKS(1)	<input type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	OXBOWS(1)	<input type="checkbox"/>	EXTENSIVE >75%(11)
<input type="checkbox"/>	OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/>	ROOTWADS(1)	<input type="checkbox"/>	AQUATIC MACROPHYTES(1)	<input checked="" type="checkbox"/>	MODERATE 25-75%(7)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/>	BOULDERS(1)	<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)	<input type="checkbox"/>	SPARSE 5-25%(3)
						<input type="checkbox"/>	NEARLY ABSENT <5%(1)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

12

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER	
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input type="checkbox"/> HIGH(3)	<input type="checkbox"/> SNAGGING	<input type="checkbox"/> IMPOUND
<input type="checkbox"/> MODERATE(3)	<input type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input type="checkbox"/> MODERATE(2)	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLAND
<input checked="" type="checkbox"/> LOW(2)	<input checked="" type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input checked="" type="checkbox"/> LOW(1)	<input type="checkbox"/> CANOPY REMOVAL	<input type="checkbox"/> LEVEED
<input type="checkbox"/> NONE(1)	<input type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)		<input type="checkbox"/> DREDGING	<input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATION	

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 6

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

L	R (per bank)
<input type="checkbox"/>	WIDE>150ft.(4)
<input checked="" type="checkbox"/>	MODERATE 30-150 ft.(3)
<input type="checkbox"/>	NARROW 15-30 ft.(2)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)
<input type="checkbox"/>	NONE(0)

EROSION/RUNOFF-FLOODPLAIN QUALITY

L	R (most predominant per bank)	L	R (per bank)
<input checked="" type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)
<input type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)
<input type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)
<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)

BANK EROSION

L	R (per bank)
<input type="checkbox"/>	NONE OR LITTLE(3)
<input checked="" type="checkbox"/>	MODERATE(2)
<input type="checkbox"/>	HEAVY OR SEVERE(1)

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLERUN QUALITY (12)

NO POOL = 0

POOL SCORE 0

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLER CURRENT VELOCITY (Check all that Apply)	
<input type="checkbox"/> >4 ft.(6)	<input type="checkbox"/> POOL WIDTH>RIFFLER WIDTH(2)	<input type="checkbox"/> TORRENTIAL(-1)	<input type="checkbox"/> EDDIES(1)
<input type="checkbox"/> 2.4-4 ft.(4)	<input type="checkbox"/> POOL WIDTH=RIFFLER WIDTH(1)	<input type="checkbox"/> FAST(1)	<input type="checkbox"/> INTERSTITIAL(-1)
<input type="checkbox"/> 1.2-2.4 ft.(2)	<input type="checkbox"/> POOL WIDTH<RIFFLER WIDTH(0)	<input type="checkbox"/> MODERATE(1)	<input type="checkbox"/> INTERMITTENT(-2)
<input type="checkbox"/> <1.2 ft.(1)		<input type="checkbox"/> SLOW(1)	
<input type="checkbox"/> <0.6 ft.(Pool=0)(0)			

COMMENTS: No pool

RIFFLER SCORE 0

RIFFLER/RUN DEPTH

<input type="checkbox"/>	GENERALLY >4 in. MAX.>20 in.(4)
<input type="checkbox"/>	GENERALLY >4 in. MAX.<20 in.(3)
<input type="checkbox"/>	GENERALLY 2-4 in.(1)
<input type="checkbox"/>	GENERALLY <2 in.(Riffle=0)(0)

RIFFLER/RUN SUBSTRATE

<input type="checkbox"/>	STABLE (e.g., Cobble,Boulder)(2)
<input type="checkbox"/>	MOD. STABLE (e.g., Pea Gravel)(1)
<input type="checkbox"/>	UNSTABLE (Gravel, Sand)(0)
<input checked="" type="checkbox"/>	NO RIFFLER(0)

RIFFLER/RUN EMBEDDEDNESS

<input type="checkbox"/>	EXTENSIVE(-1)	<input type="checkbox"/>	NONE(2)
<input type="checkbox"/>	MODERATE(0)	<input checked="" type="checkbox"/>	NO RIFFLER(0)
<input type="checkbox"/>	LOW(1)		

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 0.94 % POOL \_\_\_\_\_ % RIFFLER \_\_\_\_\_ % RUN 100 GRADIENT SCORE 8

STREAM: WFWR RIVER MILE 61.52 DATE: 9/21/2004 QHEI SCORE 53

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 12

TYPE		POOL		RIFLE		SUBSTRATE ORIGIN (all)		SILT COVER (one)							
<input type="checkbox"/>	BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	GRAVEL(7)	<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)	<input type="checkbox"/>	SILT-HEAVY(-2)	<input type="checkbox"/>	SILT-MOD(-1)
<input type="checkbox"/>	BOULDER(9)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SAND(6)	<input type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)	<input checked="" type="checkbox"/>	SILT-NORM(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	COBBLE(8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BEDROCK(5)	<input type="checkbox"/>	SANDSTONE(0)	Extent of Embeddedness (check one)					
<input type="checkbox"/>	HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DETRITUS(3)	<input type="checkbox"/>	SHALE(-1)	<input type="checkbox"/>	EXTENSIVE(-2)	<input type="checkbox"/>	MODERATE(-1)		
<input checked="" type="checkbox"/>	MUCK/SILT(2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ARTIFIC(0)	<input type="checkbox"/>	COAL FINES(-2)	<input checked="" type="checkbox"/>	LOW(0)	<input type="checkbox"/>	NONE(1)		

TOTAL NUMBER OF SUBSTRATE TYPES: ☐ >4(2) ☒ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20)

COVER SCORE 14

TYPE(Check all that apply)			AMOUNT (Check only one or Check 2 and AVERAGE)				
<input type="checkbox"/>	UNDERCUT BANKS(1)	<input checked="" type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	OXBOWS(1)	<input type="checkbox"/>	EXTENSIVE >75%(11)
<input checked="" type="checkbox"/>	OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/>	ROOTWADS(1)	<input type="checkbox"/>	AQUATIC MACROPHYTES(1)	<input checked="" type="checkbox"/>	MODERATE 25-75%(7)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input checked="" type="checkbox"/>	BOULDERS(1)	<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)	<input type="checkbox"/>	SPARSE 5-25%(3)
						<input type="checkbox"/>	NEARLY ABSENT <5%(1)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

12

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER	
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input type="checkbox"/> HIGH(3)	<input type="checkbox"/> SNAGGING	<input type="checkbox"/> IMPOUND
<input type="checkbox"/> MODERATE(3)	<input type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input type="checkbox"/> MODERATE(2)	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLAND
<input checked="" type="checkbox"/> LOW(2)	<input checked="" type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input checked="" type="checkbox"/> LOW(1)	<input type="checkbox"/> CANOPY REMOVAL	<input type="checkbox"/> LEVEED
<input type="checkbox"/> NONE(1)	<input type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)		<input type="checkbox"/> DREDGING	<input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATION	

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 7

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

L	R (per bank)
<input checked="" type="checkbox"/>	WIDE>150ft.(4)
<input type="checkbox"/>	<input checked="" type="checkbox"/> MODERATE 30-150 ft.(3)
<input type="checkbox"/>	NARROW 15-30 ft.(2)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)
<input type="checkbox"/>	NONE(0)

EROSION/RUNOFF-FLOODPLAIN QUALITY

L	R (most predominant per bank)	L	R (per bank)
<input checked="" type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)
<input type="checkbox"/>	<input checked="" type="checkbox"/> OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)
<input type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)
<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)

BANK EROSION

L	R (per bank)
<input checked="" type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	MODERATE(2)
<input type="checkbox"/>	<input checked="" type="checkbox"/> HEAVY OR SEVERE(1)

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFLE/RUN QUALITY (12)

**NO POOL = 0**

POOL SCORE 0

<u>MAX. DEPTH (Check 1)</u>	<u>MORPHOLOGY (Check 1)</u>	<u>POOL/RUN/RIFLE CURRENT VELOCITY (Check all that Apply)</u>	
<input type="checkbox"/> >4 ft.(6)	<input type="checkbox"/> POOL WIDTH>RIFLE WIDTH(2)	<input type="checkbox"/> TORRENTIAL(-1)	<input type="checkbox"/> EDDIES(1)
<input type="checkbox"/> 2.4-4 ft.(4)	<input type="checkbox"/> POOL WIDTH=RIFLE WIDTH(1)	<input type="checkbox"/> FAST(1)	<input type="checkbox"/> INTERSTITIAL(-1)
<input type="checkbox"/> 1.2-2.4 ft.(2)	<input type="checkbox"/> POOL WIDTH<RIFLE WIDTH(0)	<input type="checkbox"/> MODERATE(1)	<input type="checkbox"/> INTERMITTENT(-2)
<input type="checkbox"/> <1.2 ft.(1)		<input type="checkbox"/> SLOW(1)	
<input type="checkbox"/> <0.6 ft.(Pool=0)(0)			

COMMENTS: No pool

RIFLE SCORE 0

<u>RIFLE/RUN DEPTH</u>	<u>RIFLE/RUN SUBSTRATE</u>	<u>RIFLE/RUN EMBEDDEDNESS</u>	
<input type="checkbox"/> GENERALLY >4 in. MAX.>20 in.(4)	<input type="checkbox"/> STABLE (e.g., Cobble,Boulder)(2)	<input type="checkbox"/> EXTENSIVE(-1)	<input type="checkbox"/> NONE(2)
<input type="checkbox"/> GENERALLY >4 in. MAX.<20 in.(3)	<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)	<input type="checkbox"/> MODERATE(0)	<input checked="" type="checkbox"/> NO RIFLE(0)
<input type="checkbox"/> GENERALLY 2-4 in.(1)	<input type="checkbox"/> UNSTABLE (Gravel, Sand)(0)	<input type="checkbox"/> LOW(1)	
<input checked="" type="checkbox"/> GENERALLY <2 in.(Rifle=0)(0)	<input checked="" type="checkbox"/> NO RIFLE(0)		

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 1.02 % POOL \_\_\_\_\_ % RIFLE \_\_\_\_\_ % RUN 100 GRADIENT SCORE 8

STREAM: WFWR RIVER MILE 73.06 DATE: 9/22/2004 QHEI SCORE 62

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 13

TYPE	POOL	RIFFLE	POOL	RIFFLE	SUBSTRATE ORIGIN (all)	SILT COVER (one)
<input type="checkbox"/> BLDER/SLAB(10)			<input checked="" type="checkbox"/> GRAVEL(7)		<input type="checkbox"/> LIMESTONE(1)	<input type="checkbox"/> SILT-HEAVY(-2)
<input type="checkbox"/> BOULDER(9)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> SAND(6)		<input checked="" type="checkbox"/> TILLS(1)	<input type="checkbox"/> SILT-MOD(-1)
<input checked="" type="checkbox"/> COBBLE(8)			<input type="checkbox"/> BEDROCK(5)		<input type="checkbox"/> SANDSTONE(0)	<input type="checkbox"/> SILT-NORM(0)
<input type="checkbox"/> HARDPAN(4)			<input type="checkbox"/> DETRITUS(3)		<input type="checkbox"/> SHALE(-1)	<input type="checkbox"/> EXTENSIVE(-2)
<input checked="" type="checkbox"/> MUCK/SILT(2)			<input type="checkbox"/> ARTIFIC(0)		<input type="checkbox"/> COAL FINES(-2)	<input checked="" type="checkbox"/> MODERATE(-1)
TOTAL NUMBER OF SUBSTRATE TYPES: <input type="checkbox"/> >4(2) <input checked="" type="checkbox"/> <4(0)					Extent of Embeddedness (check one)	
					<input type="checkbox"/> LOW(0)	<input type="checkbox"/> NONE(1)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20)

COVER SCORE 16

TYPE (Check all that apply)		AMOUNT (Check only one or Check 2 and AVERAGE)
<input type="checkbox"/> UNDERCUT BANKS(1)	<input checked="" type="checkbox"/> DEEP POOLS(2)	<input checked="" type="checkbox"/> EXTENSIVE >75%(11)
<input type="checkbox"/> OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/> ROOTWADS(1)	<input type="checkbox"/> MODERATE 25-75%(7)
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/> BOULDERS(1)	<input type="checkbox"/> SPARSE 5-25%(3)
	<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS(1)	<input type="checkbox"/> NEARLY ABSENT <5%(1)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

16

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER
<input checked="" type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input type="checkbox"/> HIGH(3)	<input type="checkbox"/> SNAGGING
<input type="checkbox"/> MODERATE(3)	<input checked="" type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input type="checkbox"/> MODERATE(2)	<input type="checkbox"/> RELOCATION
<input type="checkbox"/> LOW(2)	<input type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input checked="" type="checkbox"/> LOW(1)	<input type="checkbox"/> CANOPY REMOVAL
<input type="checkbox"/> NONE(1)	<input type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)		<input type="checkbox"/> DREDGING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATION

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 7

River Right Looking Downstream

RIPARIAN WIDTH (per bank)		EROSION/RUNOFF-FLOODPLAIN QUALITY		BANK EROSION	
L	R (per bank)	L	R (most predominant per bank)	L	R (per bank)
<input checked="" type="checkbox"/>	<input type="checkbox"/> WIDE >150 ft.(4)	<input checked="" type="checkbox"/>	<input type="checkbox"/> FOREST, SWAMP(3)	<input type="checkbox"/>	<input type="checkbox"/> URBAN OR INDUSTRIAL(0)
<input type="checkbox"/>	<input checked="" type="checkbox"/> MODERATE 30-150 ft.(3)	<input type="checkbox"/>	<input checked="" type="checkbox"/> OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	<input checked="" type="checkbox"/> SHURB OR OLD FIELD(2)
<input type="checkbox"/>	<input type="checkbox"/> NARROW 15-30 ft.(2)	<input type="checkbox"/>	<input type="checkbox"/> RESID., PARK, NEW FIELD(1)	<input type="checkbox"/>	<input type="checkbox"/> CONSERV. TILLAGE(1)
<input type="checkbox"/>	<input type="checkbox"/> VERY NARROW 3-15 ft.(1)	<input type="checkbox"/>	<input type="checkbox"/> FENCED PASTURE(1)	<input type="checkbox"/>	<input type="checkbox"/> MINING/CONSTRUCTION(0)
<input type="checkbox"/>	<input type="checkbox"/> NONE(0)				

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12)

**NO POOL = 0**

POOL SCORE 0

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)
<input type="checkbox"/> >4 ft.(6)	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH(2)	<input type="checkbox"/> TORRENTIAL(-1)
<input type="checkbox"/> 2.4-4 ft.(4)	<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH(1)	<input type="checkbox"/> FAST(1)
<input type="checkbox"/> 1.2-2.4 ft.(2)	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH(0)	<input type="checkbox"/> MODERATE(1)
<input type="checkbox"/> <1.2 ft.(1)		<input type="checkbox"/> SLOW(1)
<input type="checkbox"/> <0.6 ft. (Pool=0)(0)		<input type="checkbox"/> EDDIES(1)
		<input type="checkbox"/> INTERSTITIAL(-1)
		<input type="checkbox"/> INTERMITTENT(-2)

COMMENTS: No pool

RIFFLE SCORE 0

RIFFLE/RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS
<input type="checkbox"/> GENERALLY >4 in. MAX. >20 in.(4)	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder)(2)	<input type="checkbox"/> EXTENSIVE(-1)
<input type="checkbox"/> GENERALLY >4 in. MAX. <20 in.(3)	<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)	<input type="checkbox"/> MODERATE(0)
<input type="checkbox"/> GENERALLY 2-4 in.(1)	<input type="checkbox"/> UNSTABLE (Gravel, Sand)(0)	<input checked="" type="checkbox"/> NO RIFFLE(0)
<input type="checkbox"/> GENERALLY <2 in. (Riffle=0)(0)	<input checked="" type="checkbox"/> NO RIFFLE(0)	<input type="checkbox"/> LOW(1)

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10): 1.28 % POOL \_\_\_\_\_ % RIFFLE \_\_\_\_\_ % RUN 100 GRADIENT SCORE 10

STREAM: WFWR RIVER MILE 84.5 DATE: 10/19/2004 QHEI SCORE 53

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 12

TYPE		POOL	RIFFLE	SUBSTRATE ORIGIN (all)		SILT COVER (one)							
<input type="checkbox"/>	BLDER/SLAB(10)			<input checked="" type="checkbox"/>	GRAVEL(7)	<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)	<input type="checkbox"/>	SILT-HEAVY(-2)	<input type="checkbox"/>	SILT-MOD(-1)
<input type="checkbox"/>	BOULDER(9)			<input checked="" type="checkbox"/>	SAND(6)	<input checked="" type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)	<input checked="" type="checkbox"/>	SILT-NORM(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	COBBLE(8)				BEDROCK(5)		SANDSTONE(0)	Extent of Embeddedness (check one)					
<input type="checkbox"/>	HARDPAN(4)				DETRITUS(3)		SHALE(-1)	<input type="checkbox"/>	EXTENSIVE(-2)	<input type="checkbox"/>	MODERATE(-1)		
<input checked="" type="checkbox"/>	MUCK/SILT(2)				ARTIFIC(0)		COAL FINES(-2)	<input checked="" type="checkbox"/>	LOW(0)	<input type="checkbox"/>	NONE(1)		

TOTAL NUMBER OF SUBSTRATE TYPES: ☐ >4(2) ☒ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20)

COVER SCORE 11

TYPE(Check all that apply)			AMOUNT (Check only one or Check 2 and AVERAGE)				
<input type="checkbox"/>	UNDERCUT BANKS(1)	<input type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	OXBOWS(1)	<input type="checkbox"/>	EXTENSIVE >75%(11)
<input checked="" type="checkbox"/>	OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/>	ROOTWADS(1)	<input type="checkbox"/>	AQUATIC MACROPHYTES(1)	<input checked="" type="checkbox"/>	MODERATE 25-75%(7)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/>	BOULDERS(1)	<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)	<input type="checkbox"/>	SPARSE 5-25%(3)
						<input type="checkbox"/>	NEARLY ABSENT <5%(1)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

13

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER			
<input type="checkbox"/>	HIGH(4)	<input checked="" type="checkbox"/>	NONE(6)	<input type="checkbox"/>	SNAGGING	<input type="checkbox"/>	IMPOUND
<input type="checkbox"/>	MODERATE(3)	<input type="checkbox"/>	RECOVERED(4)	<input checked="" type="checkbox"/>	MODERATE(2)	<input type="checkbox"/>	ISLAND
<input checked="" type="checkbox"/>	LOW(2)	<input type="checkbox"/>	RECOVERING(3)	<input type="checkbox"/>	LOW(1)	<input type="checkbox"/>	LEVEED
<input type="checkbox"/>	NONE(1)	<input type="checkbox"/>	RECENT OR NO RECOVERY(1)	<input checked="" type="checkbox"/>	ONE SIDE CHANNEL MODIFICATION	<input type="checkbox"/>	BANK SHAPING

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 9

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

L	R (per bank)	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	WIDE>150ft.(4)
<input type="checkbox"/>	<input type="checkbox"/>	MODERATE 30-150 ft.(3)
<input type="checkbox"/>	<input type="checkbox"/>	NARROW 15-30 ft.(2)
<input type="checkbox"/>	<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)
<input type="checkbox"/>	<input type="checkbox"/>	NONE(0)

EROSION/RUNOFF-FLOODPLAIN QUALITY

L	R (most predominant per bank)	L	R (per bank)	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)
<input type="checkbox"/>	<input type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)
<input type="checkbox"/>	<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)

BANK EROSION

L	R (per bank)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	MODERATE(2)
<input type="checkbox"/>	<input type="checkbox"/>	HEAVY OR SEVERE(1)

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12)

**NO POOL = 0**

POOL SCORE 0

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)				
<input type="checkbox"/>	<input type="checkbox"/>	POOL WIDTH>RIFFLE WIDTH(2)	<input type="checkbox"/>	TORRENTIAL(-1)	<input type="checkbox"/>	EDDIES(1)
<input type="checkbox"/>	<input type="checkbox"/>	POOL WIDTH=RIFFLE WIDTH(1)	<input type="checkbox"/>	FAST(1)	<input type="checkbox"/>	INTERSTITIAL(-1)
<input type="checkbox"/>	<input type="checkbox"/>	POOL WIDTH<RIFFLE WIDTH(0)	<input type="checkbox"/>	MODERATE(1)	<input type="checkbox"/>	INTERMITTENT(-2)
<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	SLOW(1)		

COMMENTS: No pool

RIFFLE SCORE 0

RIFFLE/RUN DEPTH

<input type="checkbox"/>	GENERALLY >4 in. MAX.>20 in.(4)
<input type="checkbox"/>	GENERALLY >4 in. MAX.<20 in.(3)
<input type="checkbox"/>	GENERALLY 2-4 in.(1)
<input type="checkbox"/>	GENERALLY <2 in.(Riffle=0)(0)

RIFFLE/RUN SUBSTRATE

<input type="checkbox"/>	STABLE (e.g., Cobble,Boulder)(2)
<input type="checkbox"/>	MOD. STABLE (e.g., Pea Gravel)(1)
<input type="checkbox"/>	UNSTABLE (Gravel, Sand)(0)
<input checked="" type="checkbox"/>	NO RIFFLE(0)

RIFFLE/RUN EMBEDDEDNESS

<input type="checkbox"/>	EXTENSIVE(-1)	<input type="checkbox"/>	NONE(2)
<input type="checkbox"/>	MODERATE(0)	<input checked="" type="checkbox"/>	NO RIFFLE(0)
<input type="checkbox"/>	LOW(1)		

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 1.02 % POOL \_\_\_\_\_ % RIFFLE \_\_\_\_\_ % RUN 100 GRADIENT SCORE 8

STREAM: WFWR RIVER MILE 101.4 DATE: 9/20/2004 QHEI SCORE 57

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 16

TYPE	POOL	RIFFLE	POOL	RIFFLE	SUBSTRATE ORIGIN (all)	SILT COVER (one)		
<input type="checkbox"/> BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> LIMESTONE(1)	<input type="checkbox"/> RIP/RAP(0)	<input type="checkbox"/> SILT-HEAVY(-2)	<input type="checkbox"/> SILT-MOD(-1)
<input type="checkbox"/> BOULDER(9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> TILLS(1)	<input type="checkbox"/> HARDPAN(0)	<input checked="" type="checkbox"/> SILT-NORM(0)	<input type="checkbox"/> SILT-FREE(1)
<input type="checkbox"/> COBBLE(8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> SANDSTONE(0)	<u>Extent of Embeddedness (check one)</u>		
<input type="checkbox"/> HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> SHALE(-1)	<input type="checkbox"/>	<input type="checkbox"/> EXTENSIVE(-2)	<input type="checkbox"/> MODERATE(-1)
<input type="checkbox"/> MUCK/SILT(2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> COAL FINES(-2)	<input type="checkbox"/>	<input type="checkbox"/> LOW(0)	<input checked="" type="checkbox"/> NONE(1)

TOTAL NUMBER OF SUBSTRATE TYPES: ☐ >4(2) ☒ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20)

COVER SCORE 10

TYPE (Check all that apply)			AMOUNT (Check only one or Check 2 and AVERAGE)
<input type="checkbox"/> UNDERCUT BANKS(1)	<input type="checkbox"/> DEEP POOLS(2)	<input type="checkbox"/> OXBOWS(1)	<input type="checkbox"/> EXTENSIVE >75%(11)
<input checked="" type="checkbox"/> OVERHANGING VEGETATION(1)	<input type="checkbox"/> ROOTWADS(1)	<input type="checkbox"/> AQUATIC MACROPHYTES(1)	<input checked="" type="checkbox"/> MODERATE 25-75%(7)
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/> BOULDERS(1)	<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS(1)	<input type="checkbox"/> SPARSE 5-25%(3)
			<input type="checkbox"/> NEARLY ABSENT <5%(1)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

15

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER	
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input type="checkbox"/> HIGH(3)	<input type="checkbox"/> SNAGGING	<input type="checkbox"/> IMPOUND
<input checked="" type="checkbox"/> MODERATE(3)	<input checked="" type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input type="checkbox"/> MODERATE(2)	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLAND
<input type="checkbox"/> LOW(2)	<input type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input checked="" type="checkbox"/> LOW(1)	<input type="checkbox"/> CANOPY REMOVAL	<input type="checkbox"/> LEVEED
<input type="checkbox"/> NONE(1)	<input type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)		<input type="checkbox"/> DREDGING	<input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATION	

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 6

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

L	R (per bank)
<input type="checkbox"/>	<input checked="" type="checkbox"/> WIDE >150 ft.(4)
<input type="checkbox"/>	<input type="checkbox"/> MODERATE 30-150 ft.(3)
<input type="checkbox"/>	<input type="checkbox"/> NARROW 15-30 ft.(2)
<input checked="" type="checkbox"/>	<input type="checkbox"/> VERY NARROW 3-15 ft.(1)
<input type="checkbox"/>	<input type="checkbox"/> NONE(0)

EROSION/RUNOFF-FLOODPLAIN QUALITY

L	R (most predominant per bank)	L	R (per bank)
<input type="checkbox"/>	<input checked="" type="checkbox"/> FOREST, SWAMP(3)	<input type="checkbox"/>	<input type="checkbox"/> URBAN OR INDUSTRIAL(0)
<input checked="" type="checkbox"/>	<input type="checkbox"/> OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	<input type="checkbox"/> SHURB OR OLD FIELD(2)
<input type="checkbox"/>	<input type="checkbox"/> RESID., PARK, NEW FIELD(1)	<input type="checkbox"/>	<input type="checkbox"/> CONSERV. TILLAGE(1)
<input type="checkbox"/>	<input type="checkbox"/> FENCED PASTURE(1)	<input type="checkbox"/>	<input type="checkbox"/> MINING/CONSTRUCTION(0)

BANK EROSION

L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/> NONE OR LITTLE(3)
<input type="checkbox"/>	<input checked="" type="checkbox"/> MODERATE(2)
<input checked="" type="checkbox"/>	<input type="checkbox"/> HEAVY OR SEVERE(1)

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12)

**NO POOL = 0**

POOL SCORE 0

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)	
<input type="checkbox"/> >4 ft.(6)	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH(2)	<input type="checkbox"/> TORRENTIAL(-1)	<input type="checkbox"/> EDDIES(1)
<input type="checkbox"/> 2.4-4 ft.(4)	<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH(1)	<input type="checkbox"/> FAST(1)	<input type="checkbox"/> INTERSTITIAL(-1)
<input type="checkbox"/> 1.2-2.4 ft.(2)	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH(0)	<input type="checkbox"/> MODERATE(1)	<input type="checkbox"/> INTERMITTENT(-2)
<input type="checkbox"/> <1.2 ft.(1)		<input type="checkbox"/> SLOW(1)	
<input type="checkbox"/> <0.6 ft. (Pool=0)(0)			

COMMENTS: No pool

RIFFLE SCORE 0

RIFFLE/RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS	
<input type="checkbox"/> GENERALLY >4 in. MAX. >20 in.(4)	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder)(2)	<input type="checkbox"/> EXTENSIVE(-1)	<input type="checkbox"/> NONE(2)
<input type="checkbox"/> GENERALLY >4 in. MAX. <20 in.(3)	<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)	<input type="checkbox"/> MODERATE(0)	<input checked="" type="checkbox"/> NO RIFFLE(0)
<input type="checkbox"/> GENERALLY 2-4 in.(1)	<input type="checkbox"/> UNSTABLE (Gravel, Sand)(0)	<input type="checkbox"/> LOW(1)	
<input type="checkbox"/> GENERALLY <2 in. (Riffle=0)(0)	<input checked="" type="checkbox"/> NO RIFFLE(0)		

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10): 1.20 % POOL \_\_\_\_\_ % RIFFLE \_\_\_\_\_ % RUN 100 GRADIENT SCORE 10

STREAM: West Fork White River RIVER MILE 105.7 DATE: 9/20/2004 QHEI SCORE 56.5

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 13.5

TYPE		POOL	RIFFLE	POOL		RIFFLE	SUBSTRATE ORIGIN (all)		SILT COVER (one)					
<input type="checkbox"/>	BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GRAVEL(7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)	<input type="checkbox"/>	SILT-HEAVY(-2)	<input checked="" type="checkbox"/>	SILT-MOD(-1)
<input type="checkbox"/>	BOULDER(9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SAND(6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)	<input type="checkbox"/>	SILT-NORM(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	COBBLE(8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BEDROCK(5)	<input type="checkbox"/>	<input type="checkbox"/>	SANDSTONE(0)	Extent of Embeddedness (check one)					
<input type="checkbox"/>	HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DETRITUS(3)	<input type="checkbox"/>	<input type="checkbox"/>	SHALE(-1)	<input checked="" type="checkbox"/>	EXTENSIVE(-2)	<input checked="" type="checkbox"/>	MODERATE(-1)		
<input type="checkbox"/>	MUCK/SILT(2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ARTIFIC(0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	COAL FINES(-2)	<input type="checkbox"/>	LOW(0)	<input type="checkbox"/>	NONE(1)		

TOTAL NUMBER OF SUBSTRATE TYPES: 2 >4(2) ☐ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20)

COVER SCORE 12

TYPE (Check all that apply)				AMOUNT (Check only one or Check 2 and AVERAGE)			
<input type="checkbox"/>	UNDERCUT BANKS(1)	<input checked="" type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	OXBOWS(1)	<input type="checkbox"/>	EXTENSIVE >75%(11)
<input type="checkbox"/>	OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/>	ROOTWADS(1)	<input type="checkbox"/>	AQUATIC MACROPHYTES(1)	<input checked="" type="checkbox"/>	MODERATE 25-75%(7)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/>	BOULDERS(1)	<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)	<input type="checkbox"/>	SPARSE 5-25%(3)
						<input type="checkbox"/>	NEARLY ABSENT <5%(1)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

10

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER	
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input type="checkbox"/> HIGH(3)	<input type="checkbox"/> SNAGGING	<input type="checkbox"/> IMPOUND
<input type="checkbox"/> MODERATE(3)	<input type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input type="checkbox"/> MODERATE(2)	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLAND
<input checked="" type="checkbox"/> LOW(2)	<input type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input checked="" type="checkbox"/> LOW(1)	<input type="checkbox"/> CANOPY REMOVAL	<input type="checkbox"/> LEVEED
<input type="checkbox"/> NONE(1)	<input checked="" type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)		<input type="checkbox"/> DREDGING	<input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATION	

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 5

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

L	R (per bank)
<input type="checkbox"/>	WIDE >150ft.(4)
<input checked="" type="checkbox"/>	MODERATE 30-150 ft.(3)
<input type="checkbox"/>	NARROW 15-30 ft.(2)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)
<input type="checkbox"/>	NONE(0)

EROSION/RUNOFF-FLOODPLAIN QUALITY

L	R (most predominant per bank)	L	R (per bank)
<input type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)
<input checked="" type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)
<input type="checkbox"/>	RESID., PARK, NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)
<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)

BANK EROSION

L	R (per bank)
<input type="checkbox"/>	NONE OR LITTLE(3)
<input checked="" type="checkbox"/>	MODERATE(2)
<input type="checkbox"/>	HEAVY OR SEVERE(1)

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12)

**NO POOL = 0**

POOL SCORE 10

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)	
<input checked="" type="checkbox"/> >4 ft.(6)	<input checked="" type="checkbox"/> POOL WIDTH > RIFFLE WIDTH(2)	<input type="checkbox"/> TORRENTIAL(-1)	<input checked="" type="checkbox"/> EDDIES(1)
<input type="checkbox"/> 2.4-4 ft.(4)	<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH(1)	<input type="checkbox"/> FAST(1)	<input type="checkbox"/> INTERSTITIAL(-1)
<input type="checkbox"/> 1.2-2.4 ft.(2)	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH(0)	<input type="checkbox"/> MODERATE(1)	<input type="checkbox"/> INTERMITTENT(-2)
<input type="checkbox"/> <1.2 ft.(1)		<input checked="" type="checkbox"/> SLOW(1)	
<input type="checkbox"/> <0.6 ft. (Pool=0)(0)			

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 0

RIFFLE/RUN DEPTH

<input type="checkbox"/> GENERALLY >4 in. MAX. >20 in.(4)
<input type="checkbox"/> GENERALLY >4 in. MAX. <20 in.(3)
<input type="checkbox"/> GENERALLY 2-4 in.(1)
<input type="checkbox"/> GENERALLY <2 in. (Riffle=0)(0)

RIFFLE/RUN SUBSTRATE

<input type="checkbox"/> STABLE (e.g., Cobble, Boulder)(2)
<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)
<input type="checkbox"/> UNSTABLE (Gravel, Sand)(0)
<input type="checkbox"/> NO RIFFLE(0)

RIFFLE/RUN EMBEDDEDNESS

<input type="checkbox"/> EXTENSIVE(-1)	<input type="checkbox"/> NONE(2)
<input type="checkbox"/> MODERATE(0)	<input checked="" type="checkbox"/> NO RIFFLE(0)
<input type="checkbox"/> LOW(1)	

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 0.93 % POOL 25 % RIFFLE 0 % RUN 75 GRADIENT SCORE 6

STREAM: West Fork White River RIVER MILE 115.5 DATE: 9/23/2004 QHEI SCORE 44.5

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 11.5

TYPE		POOL	RUN	POOL		RUN	SUBSTRATE ORIGIN (all)		SILT COVER (one)					
<input checked="" type="checkbox"/>	BLDER/SLAB(10)			<input checked="" type="checkbox"/>	GRAVEL(7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)	<input type="checkbox"/>	SILT-HEAVY(-2)	<input checked="" type="checkbox"/>	SILT-MOD(-1)
<input type="checkbox"/>	BOULDER(9)			<input checked="" type="checkbox"/>	SAND(6)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)	<input type="checkbox"/>	SILT-NORM(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	COBBLE(8)			<input type="checkbox"/>	BEDROCK(5)			SANDSTONE(0)	Extent of Embeddedness (check one)					
<input type="checkbox"/>	HARDPAN(4)			<input type="checkbox"/>	DETRITUS(3)			SHALE(-1)	<input checked="" type="checkbox"/>	EXTENSIVE(-2)	<input checked="" type="checkbox"/>	MODERATE(-1)		
<input type="checkbox"/>	MUCK/SILT(2)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	ARTIFIC(0)			COAL FINES(-2)	<input type="checkbox"/>	LOW(0)	<input type="checkbox"/>	NONE(1)		

TOTAL NUMBER OF SUBSTRATE TYPES: ☐ >4(2) ☒ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20)

COVER SCORE 6

TYPE(Check all that apply)				AMOUNT (Check only one or Check 2 and AVERAGE)			
<input checked="" type="checkbox"/>	UNDERCUT BANKS(1)	<input type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	OXBOWS(1)	<input type="checkbox"/>	EXTENSIVE >75%(11)
<input type="checkbox"/>	OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/>	ROOTWADS(1)	<input type="checkbox"/>	AQUATIC MACROPHYTES(1)	<input type="checkbox"/>	MODERATE 25-75%(7)
<input type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/>	BOULDERS(1)	<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)	<input checked="" type="checkbox"/>	SPARSE 5-25%(3)
						<input type="checkbox"/>	NEARLY ABSENT <5%(1)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

10

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER	
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input type="checkbox"/> HIGH(3)	<input type="checkbox"/> SNAGGING	<input type="checkbox"/> IMPOUND
<input type="checkbox"/> MODERATE(3)	<input type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input checked="" type="checkbox"/> MODERATE(2)	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLAND
<input type="checkbox"/> LOW(2)	<input type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input type="checkbox"/> LOW(1)	<input type="checkbox"/> CANOPY REMOVAL	<input type="checkbox"/> LEVEED
<input checked="" type="checkbox"/> NONE(1)	<input checked="" type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)		<input type="checkbox"/> DREDGING	<input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATION	

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 6

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

L	R (per bank)
<input type="checkbox"/>	WIDE>150ft.(4)
<input checked="" type="checkbox"/>	MODERATE 30-150 ft.(3)
<input type="checkbox"/>	NARROW 15-30 ft.(2)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)
<input type="checkbox"/>	NONE(0)

EROSION/RUNOFF-FLOODPLAIN QUALITY

L	R (most predominant per bank)	L	R (per bank)
<input type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)
<input checked="" type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)
<input type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)
<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)

BANK EROSION

L	R (per bank)
<input checked="" type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	MODERATE(2)
<input type="checkbox"/>	HEAVY OR SEVERE(1)

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12)

**NO POOL = 0**

POOL SCORE 0

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)	
<input type="checkbox"/> >4 ft.(6)	<input type="checkbox"/> POOL WIDTH>RIFFLE WIDTH(2)	<input type="checkbox"/> TORRENTIAL(-1)	<input type="checkbox"/> EDDIES(1)
<input type="checkbox"/> 2.4-4 ft.(4)	<input type="checkbox"/> POOL WIDTH=RIFFLE WIDTH(1)	<input type="checkbox"/> FAST(1)	<input type="checkbox"/> INTERSTITIAL(-1)
<input type="checkbox"/> 1.2-2.4 ft.(2)	<input type="checkbox"/> POOL WIDTH<RIFFLE WIDTH(0)	<input type="checkbox"/> MODERATE(1)	<input type="checkbox"/> INTERMITTENT(-2)
<input type="checkbox"/> <1.2 ft.(1)		<input type="checkbox"/> SLOW(1)	
<input type="checkbox"/> <0.6 ft.(Pool=0)(0)			

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 5

RIFFLE/RUN DEPTH

<input checked="" type="checkbox"/>	GENERALLY >4 in. MAX.>20 in.(4)
<input type="checkbox"/>	GENERALLY >4 in. MAX.<20 in.(3)
<input type="checkbox"/>	GENERALLY 2-4 in.(1)
<input type="checkbox"/>	GENERALLY <2 in.(Riffle=0)(0)

RIFFLE/RUN SUBSTRATE

<input type="checkbox"/>	STABLE (e.g., Cobble,Boulder)(2)
<input type="checkbox"/>	MOD. STABLE (e.g., Pea Gravel)(1)
<input checked="" type="checkbox"/>	UNSTABLE (Gravel, Sand)(0)
<input type="checkbox"/>	NO RIFFLE(0)

RIFFLE/RUN EMBEDDEDNESS

<input type="checkbox"/>	EXTENSIVE(-1)	<input type="checkbox"/>	NONE(2)
<input type="checkbox"/>	MODERATE(0)	<input type="checkbox"/>	NO RIFFLE(0)
<input checked="" type="checkbox"/>	LOW(1)		

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 0.93 % POOL 0 % RIFFLE 0 % RUN 100 GRADIENT SCORE 6

STREAM: West Fork White River RIVER MILE 125.0 DATE: 9/21/2004 QHEI SCORE 60.5

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 14

TYPE		POOL	RIFFLE	POOL		RIFFLE	SUBSTRATE ORIGIN (all)		SILT COVER (one)							
<input type="checkbox"/>	BLDER/SLAB(10)			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	GRAVEL(7)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LIMESTONE(1)	<input checked="" type="checkbox"/>	RIP/RAP(0)	<input type="checkbox"/>	SILT-HEAVY(-2)	<input type="checkbox"/>	SILT-MOD(-1)
<input type="checkbox"/>	BOULDER(9)			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SAND(6)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)	<input checked="" type="checkbox"/>	SILT-NORM(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	COBBLE(8)			<input type="checkbox"/>	<input type="checkbox"/>	BEDROCK(5)			<input type="checkbox"/>	SANDSTONE(0)	Extent of Embeddedness (check one)					
<input type="checkbox"/>	HARDPAN(4)			<input type="checkbox"/>	<input type="checkbox"/>	DETRITUS(3)			<input type="checkbox"/>	SHALE(-1)	<input checked="" type="checkbox"/>	EXTENSIVE(-2)	<input checked="" type="checkbox"/>	MODERATE(-1)		
<input type="checkbox"/>	MUCK/SILT(2)	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ARTIFIC(0)			<input type="checkbox"/>	COAL FINES(-2)	<input type="checkbox"/>	LOW(0)	<input type="checkbox"/>	NONE(1)		

TOTAL NUMBER OF SUBSTRATE TYPES: ☐ >4(2) ☐ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20)

COVER SCORE 12

TYPE (Check all that apply)				AMOUNT (Check only one or Check 2 and AVERAGE)			
<input type="checkbox"/>	UNDERCUT BANKS(1)	<input checked="" type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	OXBOWS(1)	<input type="checkbox"/>	EXTENSIVE >75%(11)
<input type="checkbox"/>	OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/>	ROOTWADS(1)	<input type="checkbox"/>	AQUATIC MACROPHYTES(1)	<input checked="" type="checkbox"/>	MODERATE 25-75%(7)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/>	BOULDERS(1)	<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)	<input type="checkbox"/>	SPARSE 5-25%(3)
				<input type="checkbox"/>		<input type="checkbox"/>	NEARLY ABSENT <5%(1)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

9

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER					
<input type="checkbox"/>	HIGH(4)	<input type="checkbox"/>	NONE(6)	<input type="checkbox"/>	HIGH(3)	<input type="checkbox"/>	SNAGGING	<input type="checkbox"/>	IMPOUND
<input type="checkbox"/>	MODERATE(3)	<input type="checkbox"/>	RECOVERED(4)	<input checked="" type="checkbox"/>	MODERATE(2)	<input type="checkbox"/>	RELOCATION	<input type="checkbox"/>	ISLAND
<input checked="" type="checkbox"/>	LOW(2)	<input checked="" type="checkbox"/>	RECOVERING(3)	<input type="checkbox"/>	LOW(1)	<input type="checkbox"/>	CANOPY REMOVAL	<input type="checkbox"/>	LEVEED
<input type="checkbox"/>	NONE(1)	<input checked="" type="checkbox"/>	RECENT OR NO RECOVERY(1)			<input type="checkbox"/>	DREDGING	<input type="checkbox"/>	BANK SHAPING
						<input type="checkbox"/>	ONE SIDE CHANNEL MODIFICATION		

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 4.5

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

EROSION/RUNOFF-FLOODPLAIN QUALITY

BANK EROSION

L R (per bank)		L R (most predominant per bank)		L R (per bank)		L R (per bank)	
<input type="checkbox"/>	WIDE >150ft.(4)	<input type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)	<input type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	MODERATE 30-150 ft.(3)	<input checked="" type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)	<input checked="" type="checkbox"/>	MODERATE(2)
<input checked="" type="checkbox"/>	NARROW 15-30 ft.(2)	<input checked="" type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)	<input type="checkbox"/>	HEAVY OR SEVERE(1)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)	<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)		
<input type="checkbox"/>	NONE(0)						

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12)

NO POOL = 0

POOL SCORE 11

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)			
<input checked="" type="checkbox"/>	>4 ft.(6)	<input type="checkbox"/>	TORRENTIAL(-1)	<input checked="" type="checkbox"/>	EDDIES(1)
<input type="checkbox"/>	2.4-4 ft.(4)	<input checked="" type="checkbox"/>	FAST(1)	<input type="checkbox"/>	INTERSTITIAL(-1)
<input type="checkbox"/>	1.2-2.4 ft.(2)	<input type="checkbox"/>	MODERATE(1)	<input type="checkbox"/>	INTERMITTENT(-2)
<input type="checkbox"/>	<1.2 ft.(1)	<input checked="" type="checkbox"/>	SLOW(1)		
<input type="checkbox"/>	<0.6 ft.(Pool=0)(0)				

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 4

RIFFLE/RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS			
<input checked="" type="checkbox"/>	GENERALLY >4 in. MAX.>20 in.(4)	<input type="checkbox"/>	EXTENSIVE(-1)	<input type="checkbox"/>	NONE(2)
<input type="checkbox"/>	GENERALLY >4 in. MAX.<20 in.(3)	<input checked="" type="checkbox"/>	MODERATE(0)	<input type="checkbox"/>	NO RIFFLE(0)
<input type="checkbox"/>	GENERALLY 2-4 in.(1)	<input type="checkbox"/>	LOW(1)		
<input type="checkbox"/>	GENERALLY <2 in.(Riffle=0)(0)				

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 0.93 % POOL 25 % RIFFLE 25 % RUN 50 GRADIENT SCORE 6

STREAM: West Fork White River RIVER MILE 134.7 DATE: 9/21/2004 QHEI SCORE 61.5

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 12

TYPE		POOL	RIFFLE	POOL		RIFFLE	SUBSTRATE ORIGIN (all)		SILT COVER (one)					
<input checked="" type="checkbox"/>	BLDER/SLAB(10)	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	GRAVEL(7)	<input checked="" type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)	<input type="checkbox"/>	SILT-HEAVY(-2)	<input type="checkbox"/>	SILT-MOD(-1)
<input type="checkbox"/>	BOULDER(9)			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SAND(6)	<input checked="" type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)	<input checked="" type="checkbox"/>	SILT-NORM(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	COBBLE(8)			<input type="checkbox"/>	<input type="checkbox"/>	BEDROCK(5)		SANDSTONE(0)	Extent of Embeddedness (check one)					
<input type="checkbox"/>	HARDPAN(4)			<input type="checkbox"/>	<input type="checkbox"/>	DETRITUS(3)		SHALE(-1)	<input checked="" type="checkbox"/>	EXTENSIVE(-2)	<input type="checkbox"/>	MODERATE(-1)		
<input type="checkbox"/>	MUCK/SILT(2)			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ARTIFIC(0)		COAL FINES(-2)	<input type="checkbox"/>	LOW(0)	<input type="checkbox"/>	NONE(1)		

TOTAL NUMBER OF SUBSTRATE TYPES: ☐ >4(2) ☐ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20)

COVER SCORE 15

TYPE(Check all that apply)				AMOUNT (Check only one or Check 2 and AVERAGE)			
<input checked="" type="checkbox"/>	UNDERCUT BANKS(1)	<input type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	OXBOWS(1)	<input checked="" type="checkbox"/>	EXTENSIVE >75%(11)
<input type="checkbox"/>	OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/>	ROOTWADS(1)	<input type="checkbox"/>	AQUATIC MACROPHYTES(1)	<input type="checkbox"/>	MODERATE 25-75%(7)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/>	BOULDERS(1)	<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)	<input type="checkbox"/>	SPARSE 5-25%(3)
						<input type="checkbox"/>	NEARLY ABSENT <5%(1)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

12

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER	
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input checked="" type="checkbox"/> HIGH(3)	<input type="checkbox"/> SNAGGING	<input type="checkbox"/> IMPOUND
<input type="checkbox"/> MODERATE(3)	<input type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input type="checkbox"/> MODERATE(2)	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLAND
<input checked="" type="checkbox"/> LOW(2)	<input type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input type="checkbox"/> LOW(1)	<input type="checkbox"/> CANOPY REMOVAL	<input type="checkbox"/> LEVEED
<input type="checkbox"/> NONE(1)	<input checked="" type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)		<input type="checkbox"/> DREDGING	<input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATION	

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 4.5

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

L	R (per bank)
<input checked="" type="checkbox"/>	WIDE>150ft.(4)
<input type="checkbox"/>	MODERATE 30-150 ft.(3)
<input checked="" type="checkbox"/>	NARROW 15-30 ft.(2)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)
<input type="checkbox"/>	NONE(0)

EROSION/RUNOFF-FLOODPLAIN QUALITY

L	R (most predominant per bank)	L	R (per bank)
<input type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)
<input checked="" type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)
<input type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)
<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)

BANK EROSION

L	R (per bank)
<input type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	MODERATE(2)
<input checked="" type="checkbox"/>	HEAVY OR SEVERE(1)

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12)

NO POOL = 0

POOL SCORE 10

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)	
<input checked="" type="checkbox"/> >4 ft.(6)	<input checked="" type="checkbox"/> POOL WIDTH>RIFFLE WIDTH(2)	<input type="checkbox"/> TORRENTIAL(-1)	<input checked="" type="checkbox"/> EDDIES(1)
<input type="checkbox"/> 2.4-4 ft.(4)	<input type="checkbox"/> POOL WIDTH=RIFFLE WIDTH(1)	<input type="checkbox"/> FAST(1)	<input type="checkbox"/> INTERSTITIAL(-1)
<input type="checkbox"/> 1.2-2.4 ft.(2)	<input type="checkbox"/> POOL WIDTH<RIFFLE WIDTH(0)	<input type="checkbox"/> MODERATE(1)	<input type="checkbox"/> INTERMITTENT(-2)
<input type="checkbox"/> <1.2 ft.(1)		<input checked="" type="checkbox"/> SLOW(1)	
<input type="checkbox"/> <0.6 ft.(Pool=0)(0)			

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 0

RIFFLE/RUN DEPTH

<input type="checkbox"/> GENERALLY >4 in. MAX.>20 in.(4)
<input type="checkbox"/> GENERALLY >4 in. MAX.<20 in.(3)
<input type="checkbox"/> GENERALLY 2-4 in.(1)
<input checked="" type="checkbox"/> GENERALLY <2 in.(Riffle=0)(0)

RIFFLE/RUN SUBSTRATE

<input type="checkbox"/> STABLE (e.g., Cobble,Boulder)(2)
<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)
<input type="checkbox"/> UNSTABLE (Gravel, Sand)(0)
<input checked="" type="checkbox"/> NO RIFFLE(0)

RIFFLE/RUN EMBEDDEDNESS

<input type="checkbox"/> EXTENSIVE(-1)	<input type="checkbox"/> NONE(2)
<input type="checkbox"/> MODERATE(0)	<input checked="" type="checkbox"/> NO RIFFLE(0)
<input type="checkbox"/> LOW(1)	

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 1.45 % POOL 100 % RIFFLE 0 % RUN 0 GRADIENT SCORE 8

STREAM: West Fork White River RIVER MILE 145.1 DATE: 9/21/2004 QHEI SCORE 63

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 14

TYPE		POOL	RUN	POOL		RUN	SUBSTRATE ORIGIN (all)		SILT COVER (one)							
<input checked="" type="checkbox"/>	BLDER/SLAB(10)			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	GRAVEL(7)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)	<input type="checkbox"/>	SILT-HEAVY(-2)	<input type="checkbox"/>	SILT-MOD(-1)
<input type="checkbox"/>	BOULDER(9)			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SAND(6)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)	<input checked="" type="checkbox"/>	SILT-NORM(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	COBBLE(8)			<input type="checkbox"/>	<input type="checkbox"/>	BEDROCK(5)				SANDSTONE(0)	Extent of Embeddedness (check one)					
<input type="checkbox"/>	HARDPAN(4)			<input type="checkbox"/>	<input type="checkbox"/>	DETRITUS(3)				SHALE(-1)	<input type="checkbox"/>	EXTENSIVE(-2)	<input type="checkbox"/>	MODERATE(-1)		
<input type="checkbox"/>	MUCK/SILT(2)			<input type="checkbox"/>	<input type="checkbox"/>	ARTIFIC(0)				COAL FINES(-2)	<input checked="" type="checkbox"/>	LOW(0)	<input type="checkbox"/>	NONE(1)		

TOTAL NUMBER OF SUBSTRATE TYPES: ☐ >4(2) ☒ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20)

COVER SCORE 13

TYPE(Check all that apply)				AMOUNT (Check only one or Check 2 and AVERAGE)			
<input checked="" type="checkbox"/>	UNDERCUT BANKS(1)	<input checked="" type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	OXBOWS(1)	<input type="checkbox"/>	EXTENSIVE >75%(11)
<input type="checkbox"/>	OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/>	ROOTWADS(1)	<input type="checkbox"/>	AQUATIC MACROPHYTES(1)	<input checked="" type="checkbox"/>	MODERATE 25-75%(7)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/>	BOULDERS(1)	<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)	<input type="checkbox"/>	SPARSE 5-25%(3)
						<input type="checkbox"/>	NEARLY ABSENT <5%(1)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

12

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER					
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input checked="" type="checkbox"/> HIGH(3)	<input type="checkbox"/>	SNAGGING	<input type="checkbox"/>	IMPOUND		
<input type="checkbox"/> MODERATE(3)	<input type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input type="checkbox"/> MODERATE(2)	<input type="checkbox"/>	RELOCATION	<input type="checkbox"/>	ISLAND		
<input checked="" type="checkbox"/> LOW(2)	<input type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input type="checkbox"/> LOW(1)	<input type="checkbox"/>	CANOPY REMOVAL	<input type="checkbox"/>	LEVEED		
<input type="checkbox"/> NONE(1)	<input checked="" type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)	<input type="checkbox"/>					BANK SHAPING	
								<input type="checkbox"/>	ONE SIDE CHANNEL MODIFICATION

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 6

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

L	R (per bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> WIDE>150ft.(4)
<input type="checkbox"/>	<input type="checkbox"/> MODERATE 30-150 ft.(3)
<input type="checkbox"/>	<input type="checkbox"/> NARROW 15-30 ft.(2)
<input type="checkbox"/>	<input type="checkbox"/> VERY NARROW 3-15 ft.(1)
<input type="checkbox"/>	<input type="checkbox"/> NONE(0)

EROSION/RUNOFF-FLOODPLAIN QUALITY

L	R (most predominant per bank)	L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/> FOREST, SWAMP(3)	<input type="checkbox"/>	<input type="checkbox"/> URBAN OR INDUSTRIAL(0)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	<input type="checkbox"/> SHURB OR OLD FIELD(2)
<input type="checkbox"/>	<input type="checkbox"/> RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	<input type="checkbox"/> CONSERV. TILLAGE(1)
<input type="checkbox"/>	<input type="checkbox"/> FENCED PASTURE(1)	<input type="checkbox"/>	<input type="checkbox"/> MINING/CONSTRUCTION(0)

BANK EROSION

L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/> NONE OR LITTLE(3)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> MODERATE(2)
<input type="checkbox"/>	<input type="checkbox"/> HEAVY OR SEVERE(1)

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12)

NO POOL = 0

POOL SCORE 10

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)			
<input checked="" type="checkbox"/> >4 ft.(6)	<input checked="" type="checkbox"/> POOL WIDTH>RIFFLE WIDTH(2)	<input type="checkbox"/>	TORRENTIAL(-1)	<input checked="" type="checkbox"/>	EDDIES(1)
<input type="checkbox"/> 2.4-4 ft.(4)	<input type="checkbox"/> POOL WIDTH=RIFFLE WIDTH(1)	<input type="checkbox"/>	FAST(1)	<input type="checkbox"/>	INTERSTITIAL(-1)
<input type="checkbox"/> 1.2-2.4 ft.(2)	<input type="checkbox"/> POOL WIDTH<RIFFLE WIDTH(0)	<input type="checkbox"/>	MODERATE(1)	<input type="checkbox"/>	INTERMITTENT(-2)
<input type="checkbox"/> <1.2 ft.(1)		<input checked="" type="checkbox"/>	SLOW(1)		
<input type="checkbox"/> <0.6 ft.(Pool=0)(0)					

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 0

RIFFLE/RUN DEPTH

<input type="checkbox"/>	GENERALLY >4 in. MAX.>20 in.(4)
<input type="checkbox"/>	GENERALLY >4 in. MAX.<20 in.(3)
<input type="checkbox"/>	GENERALLY 2-4 in.(1)
<input type="checkbox"/>	GENERALLY <2 in.(Riffle=0)(0)

RIFFLE/RUN SUBSTRATE

<input type="checkbox"/>	STABLE (e.g., Cobble,Boulder)(2)
<input type="checkbox"/>	MOD. STABLE (e.g., Pea Gravel)(1)
<input type="checkbox"/>	UNSTABLE (Gravel, Sand)(0)
<input type="checkbox"/>	NO RIFFLE(0)

RIFFLE/RUN EMBEDDEDNESS

<input type="checkbox"/>	EXTENSIVE(-1)	<input type="checkbox"/>	NONE(2)
<input type="checkbox"/>	MODERATE(0)	<input checked="" type="checkbox"/>	NO RIFFLE(0)
<input type="checkbox"/>	LOW(1)		

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 1.14 % POOL 25 % RIFFLE 5 % RUN 70 GRADIENT SCORE 8

STREAM: West Fork White River RIVER MILE 156.36 DATE: 9/20/2004 QHEI SCORE 66

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 14

TYPE		POOL	RIFFLE	POOL		RIFFLE		SUBSTRATE ORIGIN (all)		SILT COVER (one)					
<input type="checkbox"/>	BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GRAVEL(7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)	<input type="checkbox"/>	SILT-HEAVY(-2)	<input type="checkbox"/>	SILT-MOD(-1)
<input type="checkbox"/>	BOULDER(9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SAND(6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)	<input checked="" type="checkbox"/>	SILT-NORM(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	COBBLE(8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BEDROCK(5)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SANDSTONE(0)	Extent of Embeddedness (check one)					
<input type="checkbox"/>	HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DETRITUS(3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SHALE(-1)	<input type="checkbox"/>	EXTENSIVE(-2)	<input checked="" type="checkbox"/>	MODERATE(-1)		
<input type="checkbox"/>	MUCK/SILT(2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ARTIFIC(0)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COAL FINES(-2)	<input type="checkbox"/>	SPARSE(0)	<input type="checkbox"/>	LOW(1)		

TOTAL NUMBER OF SUBSTRATE TYPES: ☐ >4(2) ☒ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20)

COVER SCORE 12

TYPE (Check all that apply)				AMOUNT (Check only one or Check 2 and AVERAGE)			
<input type="checkbox"/>	UNDERCUT BANKS(1)	<input checked="" type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	OXBOWS(1)	<input type="checkbox"/>	EXTENSIVE >75%(11)
<input checked="" type="checkbox"/>	OVERHANGING VEGETATION(1)	<input type="checkbox"/>	ROOTWADS(1)	<input type="checkbox"/>	AQUATIC MACROPHYTES(1)	<input checked="" type="checkbox"/>	MODERATE 25-75%(7)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/>	BOULDERS(1)	<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)	<input type="checkbox"/>	SPARSE 5-25%(3)
						<input type="checkbox"/>	NEARLY ABSENT <5%(1)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

13

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER	
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input type="checkbox"/> HIGH(3)	<input type="checkbox"/> SNAGGING	<input type="checkbox"/> IMPOUND
<input type="checkbox"/> MODERATE(3)	<input type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input checked="" type="checkbox"/> MODERATE(2)	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLAND
<input checked="" type="checkbox"/> LOW(2)	<input checked="" type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input type="checkbox"/> LOW(1)	<input type="checkbox"/> CANOPY REMOVAL	<input type="checkbox"/> LEVEED
<input type="checkbox"/> NONE(1)	<input type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)		<input type="checkbox"/> DREDGING	<input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATION	

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 7

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

L	R (per bank)
<input checked="" type="checkbox"/>	<input type="checkbox"/> WIDE >150ft.(4)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> MODERATE 30-150 ft.(3)
<input type="checkbox"/>	<input type="checkbox"/> NARROW 15-30 ft.(2)
<input type="checkbox"/>	<input type="checkbox"/> VERY NARROW 3-15 ft.(1)
<input type="checkbox"/>	<input type="checkbox"/> NONE(0)

EROSION/RUNOFF-FLOODPLAIN QUALITY

L	R (most predominant per bank)	L	R (per bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> FOREST, SWAMP(3)	<input type="checkbox"/>	<input type="checkbox"/> URBAN OR INDUSTRIAL(0)
<input type="checkbox"/>	<input type="checkbox"/> OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	<input type="checkbox"/> SHURB OR OLD FIELD(2)
<input type="checkbox"/>	<input type="checkbox"/> RESID., PARK, NEW FIELD(1)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> CONSERV. TILLAGE(1)
<input type="checkbox"/>	<input type="checkbox"/> FENCED PASTURE(1)	<input type="checkbox"/>	<input type="checkbox"/> MINING/CONSTRUCTION(0)

BANK EROSION

L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/> NONE OR LITTLE(3)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> MODERATE(2)
<input type="checkbox"/>	<input type="checkbox"/> HEAVY OR SEVERE(1)

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12)

**NO POOL = 0**

POOL SCORE 10

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)	
<input checked="" type="checkbox"/> >4 ft.(6)	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH(2)	<input type="checkbox"/> TORRENTIAL(-1)	<input type="checkbox"/> EDDIES(1)
<input type="checkbox"/> 2.4-4 ft.(4)	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH(1)	<input checked="" type="checkbox"/> FAST(1)	<input type="checkbox"/> INTERSTITIAL(-1)
<input type="checkbox"/> 1.2-2.4 ft.(2)	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH(0)	<input checked="" type="checkbox"/> MODERATE(1)	<input type="checkbox"/> INTERMITTENT(-2)
<input type="checkbox"/> <1.2 ft.(1)		<input checked="" type="checkbox"/> SLOW(1)	
<input type="checkbox"/> <0.6 ft. (Pool=0)(0)			

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 0

RIFFLE/RUN DEPTH

<input type="checkbox"/> GENERALLY >4 in. MAX. >20 in.(4)
<input type="checkbox"/> GENERALLY >4 in. MAX. <20 in.(3)
<input type="checkbox"/> GENERALLY 2-4 in.(1)
<input type="checkbox"/> GENERALLY <2 in. (Riffle=0)(0)

RIFFLE/RUN SUBSTRATE

<input type="checkbox"/> STABLE (e.g., Cobble, Boulder)(2)
<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)
<input type="checkbox"/> UNSTABLE (Gravel, Sand)(0)
<input type="checkbox"/> NO RIFFLE(0)

RIFFLE/RUN EMBEDDEDNESS

<input type="checkbox"/> EXTENSIVE(-1)	<input type="checkbox"/> LOW(2)
<input type="checkbox"/> MODERATE(0)	<input checked="" type="checkbox"/> NO RIFFLE(0)
<input type="checkbox"/> SPARSE(1)	

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 1.20 % POOL \_\_\_\_\_ % RIFFLE 0 % Run \_\_\_\_\_ GRADIENT SCORE 10

STREAM: West Fork White River RIVER MILE 164.53 DATE: 9/20/2004 QHEI SCORE 65

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 14

TYPE	POOL	RIFFLE	POOL	RIFFLE	SUBSTRATE ORIGIN (all)	SILT COVER (one)
<input type="checkbox"/> BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> LIMESTONE(1)	<input type="checkbox"/> SILT-HEAVY(-2)
<input type="checkbox"/> BOULDER(9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> TILLS(1)	<input type="checkbox"/> SILT-NORM(0)
<input type="checkbox"/> COBBLE(8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> SANDSTONE(0)	<input type="checkbox"/> SILT-FREE(1)
<input type="checkbox"/> HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> SHALE(-1)	<input type="checkbox"/> EXTENSIVE(-2)
<input type="checkbox"/> MUCK/SILT(2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> COAL FINES(-2)	<input checked="" type="checkbox"/> MODERATE(-1)
TOTAL NUMBER OF SUBSTRATE TYPES: <input type="checkbox"/> >4(2) <input checked="" type="checkbox"/> <4(0)					<u>Extent of Embeddedness (check one)</u>	
					<input type="checkbox"/> SPARSE(0)	<input type="checkbox"/> LOW(1)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20)

COVER SCORE 12

TYPE (Check all that apply)			AMOUNT (Check only one or Check 2 and AVERAGE)
<input type="checkbox"/> UNDERCUT BANKS(1)	<input checked="" type="checkbox"/> DEEP POOLS(2)	<input type="checkbox"/> OXBOWS(1)	<input type="checkbox"/> EXTENSIVE >75%(11)
<input checked="" type="checkbox"/> OVERHANGING VEGETATION(1)	<input type="checkbox"/> ROOTWADS(1)	<input type="checkbox"/> AQUATIC MACROPHYTES(1)	<input checked="" type="checkbox"/> MODERATE 25-75%(7)
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/> BOULDERS(1)	<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS(1)	<input type="checkbox"/> SPARSE 5-25%(3)
			<input type="checkbox"/> NEARLY ABSENT <5%(1)

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

11

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input type="checkbox"/> HIGH(3)	<input type="checkbox"/> SNAGGING
<input type="checkbox"/> MODERATE(3)	<input type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input checked="" type="checkbox"/> MODERATE(2)	<input type="checkbox"/> RELOCATION
<input checked="" type="checkbox"/> LOW(2)	<input type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input type="checkbox"/> LOW(1)	<input type="checkbox"/> CANOPY REMOVAL
<input type="checkbox"/> NONE(1)	<input checked="" type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)		<input type="checkbox"/> DREDGING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATION
				<input type="checkbox"/> IMPOUND
				<input type="checkbox"/> ISLAND
				<input type="checkbox"/> LEVEED
				<input type="checkbox"/> BANK SHAPING

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 8

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

L	R (per bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> WIDE >150 ft.(4)
<input type="checkbox"/>	<input type="checkbox"/> MODERATE 30-150 ft.(3)
<input type="checkbox"/>	<input checked="" type="checkbox"/> NARROW 15-30 ft.(2)
<input type="checkbox"/>	<input type="checkbox"/> VERY NARROW 3-15 ft.(1)
<input type="checkbox"/>	<input type="checkbox"/> NONE(0)

EROSION/RUNOFF-FLOODPLAIN QUALITY

L	R (most predominant per bank)	L	R (per bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> FOREST, SWAMP(3)	<input type="checkbox"/>	<input type="checkbox"/> URBAN OR INDUSTRIAL(0)
<input type="checkbox"/>	<input type="checkbox"/> OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	<input checked="" type="checkbox"/> SHRUB OR OLD FIELD(2)
<input type="checkbox"/>	<input type="checkbox"/> RESID., PARK, NEW FIELD(1)	<input type="checkbox"/>	<input type="checkbox"/> CONSERV. TILLAGE(1)
<input type="checkbox"/>	<input type="checkbox"/> FENCED PASTURE(1)	<input type="checkbox"/>	<input type="checkbox"/> MINING/CONSTRUCTION(0)

BANK EROSION

L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/> NONE OR LITTLE(3)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> MODERATE(2)
<input type="checkbox"/>	<input type="checkbox"/> HEAVY OR SEVERE(1)

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12)

**NO POOL = 0**

POOL SCORE 10

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)
<input checked="" type="checkbox"/> >4 ft.(6)	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH(2)	<input type="checkbox"/> TORRENTIAL(-1)
<input type="checkbox"/> 2-4 ft.(4)	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH(1)	<input checked="" type="checkbox"/> FAST(1)
<input type="checkbox"/> 1.2-2.4 ft.(2)	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH(0)	<input checked="" type="checkbox"/> MODERATE(1)
<input type="checkbox"/> <1.2 ft.(1)		<input checked="" type="checkbox"/> SLOW(1)
<input type="checkbox"/> <0.6 ft. (Pool=0)(0)		<input type="checkbox"/> EDDIES(1)
		<input type="checkbox"/> INTERSTITIAL(-1)
		<input type="checkbox"/> INTERMITTENT(-2)

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 0

RIFFLE/RUN DEPTH(1)

<input type="checkbox"/> GENERALLY >4 in. MAX.>20 in.(4)
<input type="checkbox"/> GENERALLY >4 in. MAX.<20 in.(3)
<input type="checkbox"/> GENERALLY 2-4 in.(1)
<input type="checkbox"/> GENERALLY <2 in. (Riffle=0)(0)

RIFFLE/RUN SUBSTRATE

<input type="checkbox"/> STABLE (e.g., Cobble, Boulder)(2)
<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)
<input type="checkbox"/> UNSTABLE (Gravel, Sand)(0)
<input type="checkbox"/> NO RIFFLE(0)

RIFFLE/RUN EMBEDDEDNESS

<input type="checkbox"/> EXTENSIVE(-1)	<input type="checkbox"/> LOW(2)
<input type="checkbox"/> MODERATE(0)	<input checked="" type="checkbox"/> NO RIFFLE(0)
<input type="checkbox"/> SPARSE(1)	

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 1.23 % POOL \_\_\_\_\_ % RIFFLE 0 % Run \_\_\_\_\_ GRADIENT SCORE 10

STREAM: West Fork White River RIVER MILE 194.09 DATE: 9/28/2004 QHEI SCORE 66

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20)

SUBSTRATE SCORE 14

TYPE	POOL	RIFFLE	POOL	RIFFLE	SUBSTRATE ORIGIN (all)	SILT COVER (one)		
<input type="checkbox"/> BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> LIMESTONE(1)	<input type="checkbox"/> RIP/RAP(0)	<input type="checkbox"/> SILT-HEAVY(-2)	<input type="checkbox"/> SILT-MOD(-1)
<input type="checkbox"/> BOULDER(9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> TILLS(1)	<input type="checkbox"/> HARDPAN(0)	<input checked="" type="checkbox"/> SILT-NORM(0)	<input type="checkbox"/> SILT-FREE(1)
<input type="checkbox"/> COBBLE(8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> SANDSTONE(0)	Extent of Embeddedness (check one)		
<input type="checkbox"/> HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> SHALE(-1)	<input type="checkbox"/> EXTENSIVE(-2)	<input checked="" type="checkbox"/> MODERATE(-1)	<input type="checkbox"/>
<input type="checkbox"/> MUCK/SILT(2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> COAL FINES(-2)	<input type="checkbox"/> SPARSE(0)	<input type="checkbox"/> LOW(1)	<input type="checkbox"/>

TOTAL NUMBER OF SUBSTRATE TYPES: ☐ >4(2) ☒ <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS:

2) INSTREAM COVER: (20)

COVER SCORE 13

TYPE (Check all that apply)			AMOUNT (Check only one or Check 2 and AVERAGE)
<input type="checkbox"/> UNDERCUT BANKS(1)	<input checked="" type="checkbox"/> DEEP POOLS(2)	<input type="checkbox"/> OXBOWS(1)	<input type="checkbox"/> EXTENSIVE >75%(11)
<input checked="" type="checkbox"/> OVERHANGING VEGETATION(1)	<input type="checkbox"/> ROOTWADS(1)	<input type="checkbox"/> AQUATIC MACROPHYTES(1)	<input checked="" type="checkbox"/> MODERATE 25-75%(7)
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER)(1)	<input checked="" type="checkbox"/> BOULDERS(1)	<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS(1)	<input type="checkbox"/> SPARSE 5-25%(3)
			<input type="checkbox"/> NEARLY ABSENT <5%(1)

COMMENTS:

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20)

13

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER	
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input type="checkbox"/> HIGH(3)	<input type="checkbox"/> SNAGGING	<input type="checkbox"/> IMPOUND
<input type="checkbox"/> MODERATE(3)	<input type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input checked="" type="checkbox"/> MODERATE(2)	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLAND
<input checked="" type="checkbox"/> LOW(2)	<input checked="" type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input type="checkbox"/> LOW(1)	<input type="checkbox"/> CANOPY REMOVAL	<input checked="" type="checkbox"/> LEVEED
<input type="checkbox"/> NONE(1)	<input type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)		<input type="checkbox"/> DREDGING	<input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATION	

COMMENTS: Lower 50 to 60% of station on right bank has a levee to protect water-well field.

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10)

RIPARIAN SCORE 6

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/> WIDE >150 ft.(4)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> MODERATE 30-150 ft.(3)
<input checked="" type="checkbox"/>	<input type="checkbox"/> NARROW 15-30 ft.(2)
<input type="checkbox"/>	<input type="checkbox"/> VERY NARROW 3-15 ft.(1)
<input type="checkbox"/>	<input type="checkbox"/> NONE(0)

EROSION/RUNOFF-FLOODPLAIN QUALITY

L	R (most predominant per bank)	L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/> FOREST, SWAMP(3)	<input type="checkbox"/>	<input type="checkbox"/> URBAN OR INDUSTRIAL(0)
<input type="checkbox"/>	<input type="checkbox"/> OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	<input type="checkbox"/> SHRUB OR OLD FIELD(2)
<input type="checkbox"/>	<input checked="" type="checkbox"/> RESID., PARK, NEW FIELD(1)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> CONSERV. TILLAGE(1)
<input type="checkbox"/>	<input type="checkbox"/> FENCED PASTURE(1)	<input type="checkbox"/>	<input type="checkbox"/> MINING/CONSTRUCTION(0)

BANK EROSION

L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/> NONE OR LITTLE(3)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> MODERATE(2)
<input type="checkbox"/>	<input type="checkbox"/> HEAVY OR SEVERE(1)

COMMENTS:

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12)

**NO POOL = 0**

POOL SCORE 10

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)	
<input checked="" type="checkbox"/> >4 ft.(6)	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH(2)	<input type="checkbox"/> TORRENTIAL(-1)	<input type="checkbox"/> EDDIES(1)
<input type="checkbox"/> 2-4 ft.(4)	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH(1)	<input checked="" type="checkbox"/> FAST(1)	<input type="checkbox"/> INTERSTITIAL(-1)
<input type="checkbox"/> 1.2-2.4 ft.(2)	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH(0)	<input checked="" type="checkbox"/> MODERATE(1)	<input type="checkbox"/> INTERMITTENT(-2)
<input type="checkbox"/> <1.2 ft.(1)		<input checked="" type="checkbox"/> SLOW(1)	
<input type="checkbox"/> <0.6 ft. (Pool=0)(0)			

COMMENTS:

RIFFLE SCORE 0

RIFFLE/RUN DEPTH(6)

<input type="checkbox"/> GENERALLY >4 in. MAX. >20 in.(4)
<input type="checkbox"/> GENERALLY >4 in. MAX. <20 in.(3)
<input type="checkbox"/> GENERALLY 2-4 in.(1)
<input type="checkbox"/> GENERALLY <2 in. (Riffle=0)(0)

RIFFLE/RUN SUBSTRATE

<input type="checkbox"/> STABLE (e.g., Cobble, Boulder)(2)
<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)
<input type="checkbox"/> UNSTABLE (Gravel, Sand)(0)
<input type="checkbox"/> NO RIFFLE(0)

RIFFLE/RUN EMBEDDEDNESS

<input type="checkbox"/> EXTENSIVE(-1)	<input type="checkbox"/> LOW(2)
<input type="checkbox"/> MODERATE(0)	<input checked="" type="checkbox"/> NO RIFFLE(0)
<input type="checkbox"/> SPARSE(1)	

COMMENTS:

6) GRADIENT (FEET/MILE)(10): 2.84 % POOL 0 % RIFFLE 0 % Run 10 GRADIENT SCORE 10